74/471XY

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Dec. 19, 1961 W. F. ALEXANDER 3,013,441

TRACKING CONTROL APPARATUS

Filed Dec. 30, 1958 3 Sheets-Sheet 1

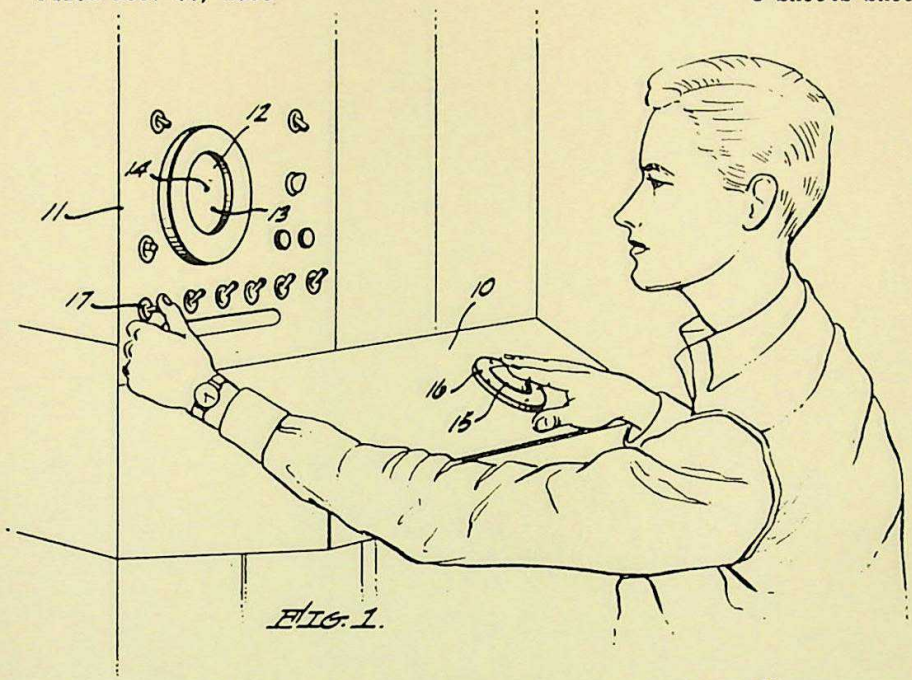
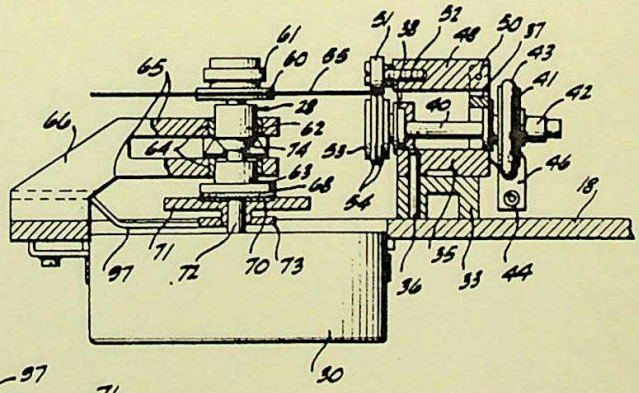


FIG. 1.

FIG. 4.



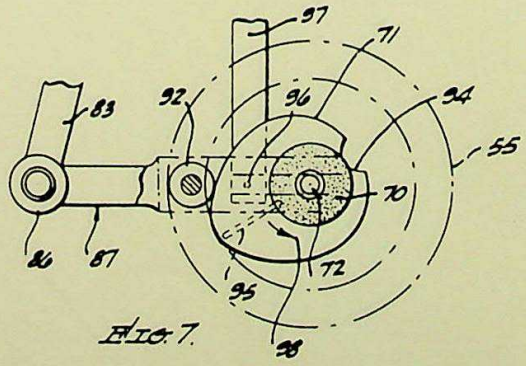


FIG. 7.

INVENTOR.
WILLIAM F. ALEXANDER.
BY
Donald L. Ryan
AGENT.

200-6.4 17 484, 489

Nov. 1, 1966 J. SCOW ETAL 3,283,088

MULTIPLE CIRCUIT SWITCH APPARATUS WITH IMPROVED PIVOT ACTUATOR STRUCTURE

Filed Sept. 1, 1965 3 Sheets-Sheet 1

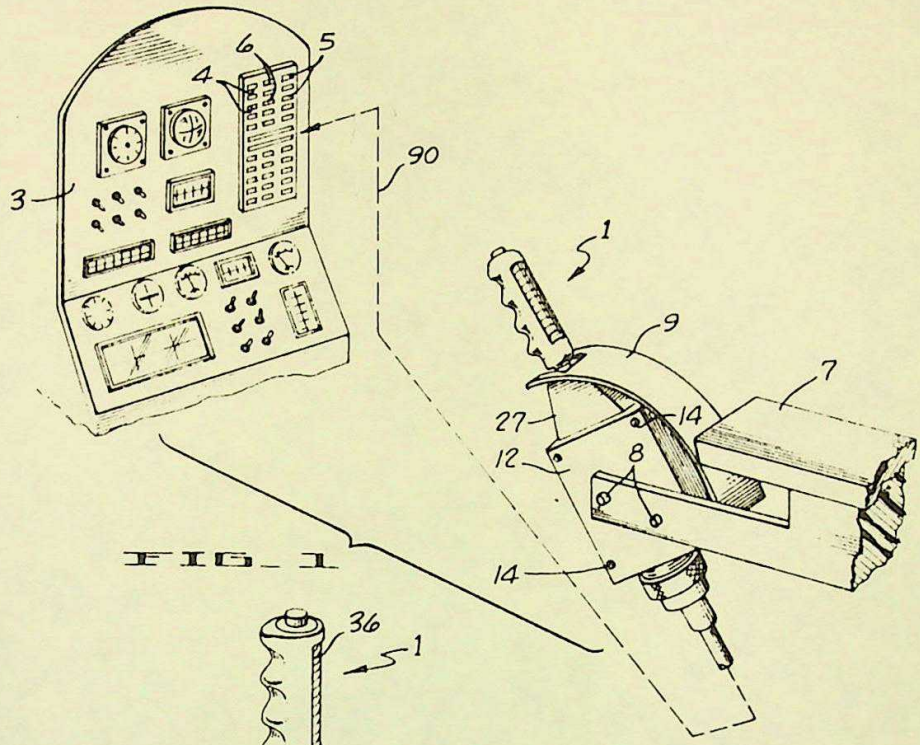


FIG_1

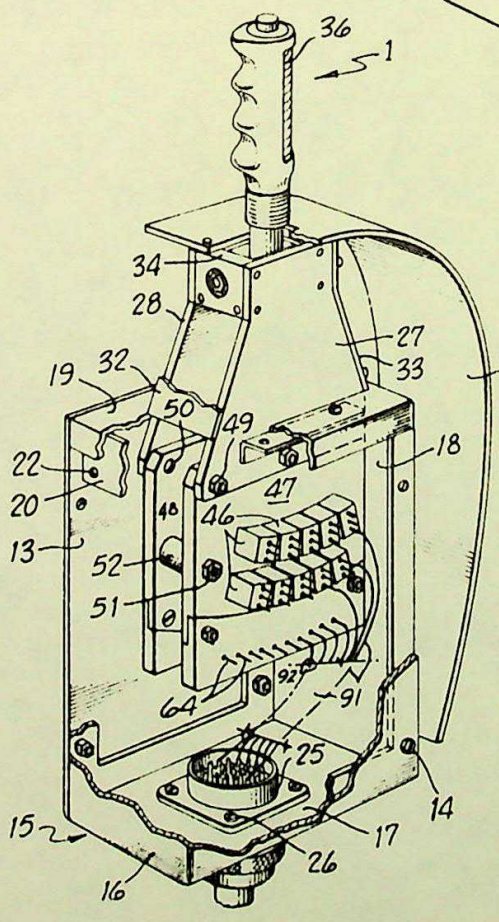


FIG_2

INVENTORS
JIM SCOW and
JAMES L. JONES

BY A. H. McCoy
Daniel G. Dalton
ATTORNEYS 415-961-2667

13-37101
21191
24391

200-6 A AU 217 EX
XR 3,373,957
200-6.R 17
[redacted]
EXAMINER
Return to MF

March 19, 1968 W. BUDDE 3,373,957

REMOTE VEHICLE CONTROL

Filed March 28, 1966

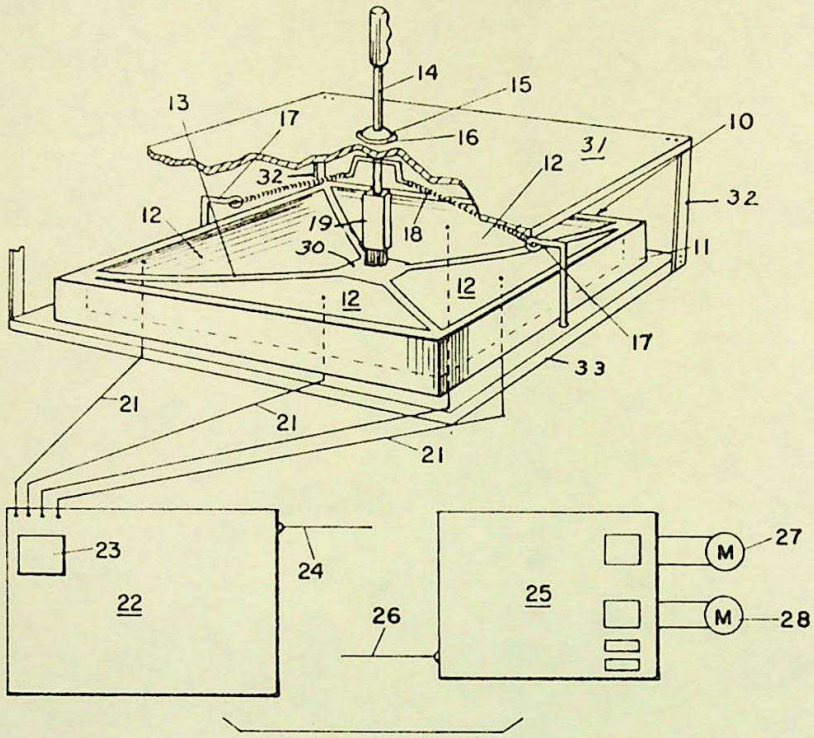


FIG. 1

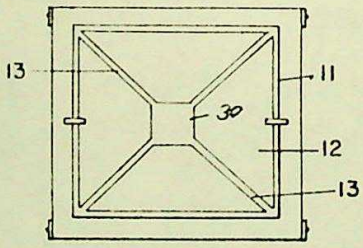


FIG. 3

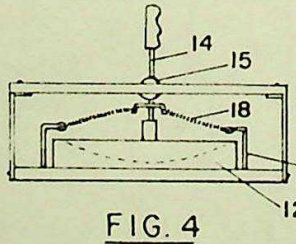


FIG. 4

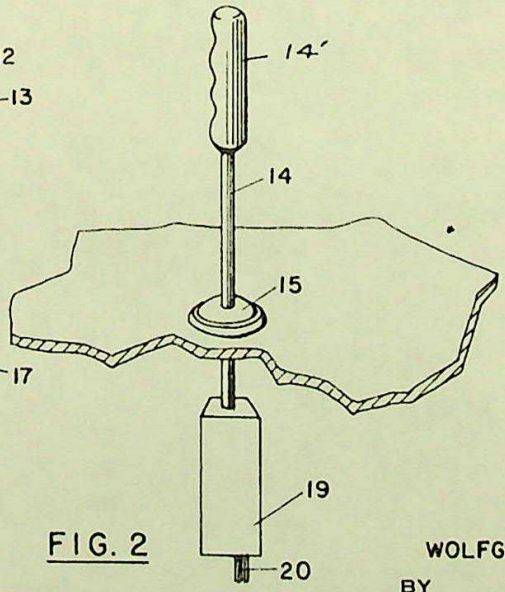


FIG. 2

INVENTOR
WOLFGANG BUDDE
BY
Charles L. Lovercheck
attorney

340-365.R

CROSS REFERENCE

EXAMINER

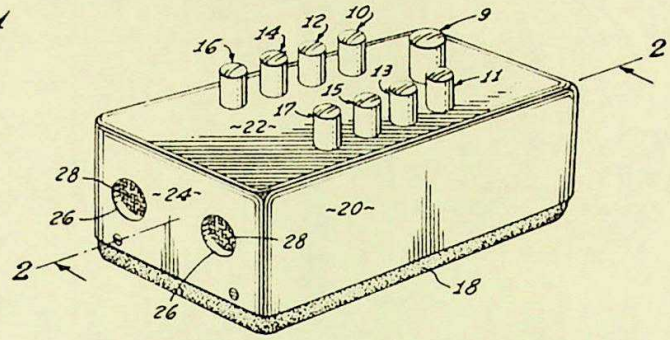
234

Dec. 30, 1969 H. F. RIETH 3,487,398

POWER GENERATOR

Filed Oct. 4, 1965 3 Sheets-Sheet 1

Fig. 1



Remote controller

Fig. 2

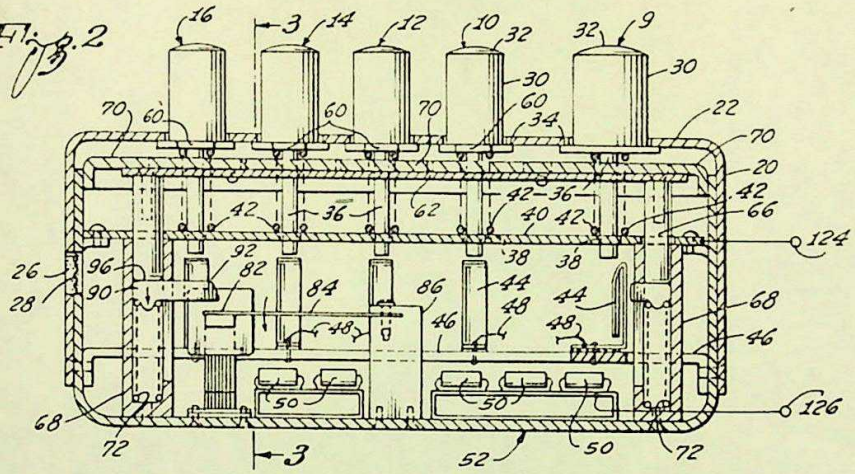
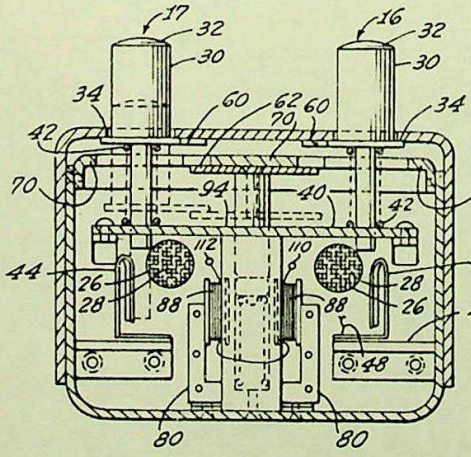


Fig. 3



INVENTOR:
Harold F. Rieth

By Smyth, Roston & Pavitt
Attorneys

es Patent Office

Des. 223,764
Patented June 6, 1972

223,764

ENTERTAINMENT CENTER

DeWitt Y. Gorman, P.O. Box 23323,
Houston, Tex. 77032

Filed Aug. 26, 1970, Ser. No. 24,699

Term of patent 14 years

Int. Cl. D14—*03*

U.S. Cl. D26—14

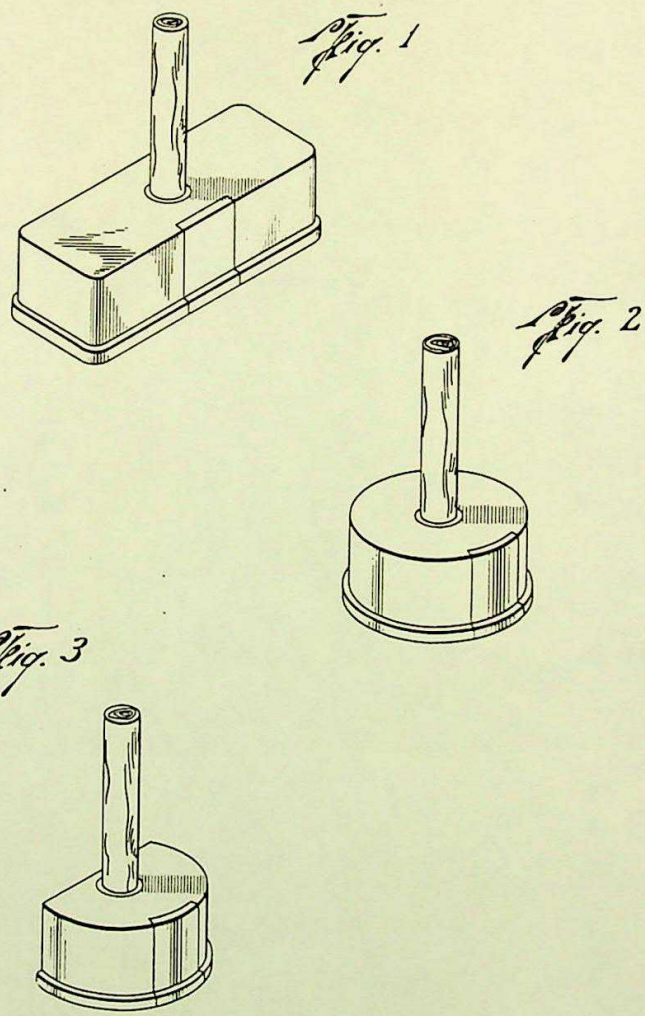


FIG. 1 is an isometric view of an entertainment center showing my new design having a rectangular parallelepiped lower portion;

FIG. 2 is an isometric view of an alternative embodiment having a cylindrical lower portion; and

FIG. 3 is an isometric view of another alternative embodiment having a lower portion with a D-shaped horizontal cross section.

I claim:

The ornamental design for an entertainment center, substantially as shown and described.

References Cited

UNITED STATES PATENTS

D. 99,863	6/1936	Hayes	D33—8
D. 210,293	2/1968	Deneen	D26—14
1,763,788	6/1930	Jobe, Sr.	40—28.3
3,199,248	8/1965	Suzuki	46—232
3,339,307	9/1967	Floyd et al.	46—232 X

BERNARD ANSHER, Primary Examiner

74-471.XY AU 342 EX
12-26-72 OR 3,707,093

United States Patent

Worden

[15] 3,707,093
[45] Dec. 26, 1972

[54] **MULTI-POWER CONTROL SYSTEM WITH SINGLE CONTROL STICK**

[72] Inventor: **Donald A. Worden**, Pompton Plains, N.J.

[73] Assignee: **Marotta Scientific Controls, Inc.**, Boonton, N.J.

[22] Filed: **Sept. 10, 1970**

[21] Appl. No.: **71,072**

[52] **U.S. Cl.** .....**74/471 XY**
[51] **Int. Cl.** **G05g 9/04**
[58] **Field of Search** .....74/471 XY, 471

[56] **References Cited**

UNITED STATES PATENTS

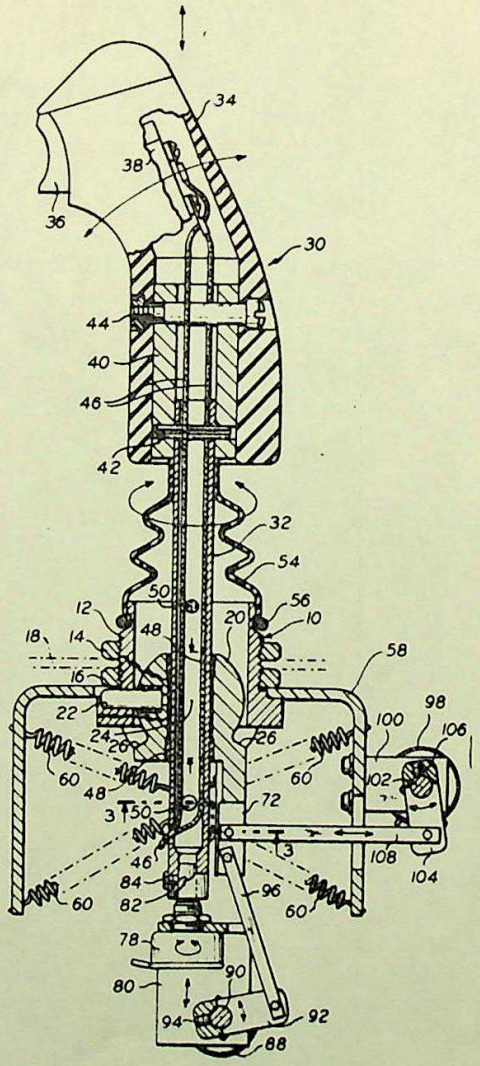
2,978,922	4/1961	Peterson	74/471 XY
3,390,587	7/1968	Ratliff, Jr.	74/471 XY
3,585,319	6/1971	Payerle et al.	74/471 XY X
3,350,956	11/1967	Monge	74/471 XY
3,394,611	7/1968	Beurrier	74/471 XY

Primary Examiner—Milton Kaufman
Attorney—Sandoe, Hopgood & Calimafde

[57] **ABSTRACT**

This multi-power control system has a group of three controllers for determining the supply of energy to different motor means, and all of the controllers are operated from a single center stick which has different motions for actuating different controllers; for example: sliding motion, rotary motion and rocking motion. Each motion operates a different potentiometer and does not affect the other potentiometers. A spring system restores the control stick to a neutral position. Movement from the neutral position in different directions reverses the effect of the control, and the intensity of the power supply is proportional to the force applied to the stick.

14 Claims, 4 Drawing Figures



340-,10 AU 234 EX
OR 3,835,464

United States Patent [19]
Rider

[11] **3,835,464**
[45] **Sept. 10, 1974**

[54] **POSITION INDICATOR FOR A DISPLAY SYSTEM**

[75] Inventor: **Ronald E. Rider**, Menlo Park, Calif.

[73] Assignee: **Xerox Corporation**, Stamford, Conn.

[22] Filed: **Jan. 11, 1973**

[21] Appl. No.: **322,810**

[52] **U.S. Cl.** ..... **340/324 A**, 74/198
[51] **Int. Cl.** **G06f 3/14**
[58] **Field of Search** ..... 178/18-20; 340/324 A, 324 AD; 74/198

[56] **References Cited**

UNITED STATES PATENTS

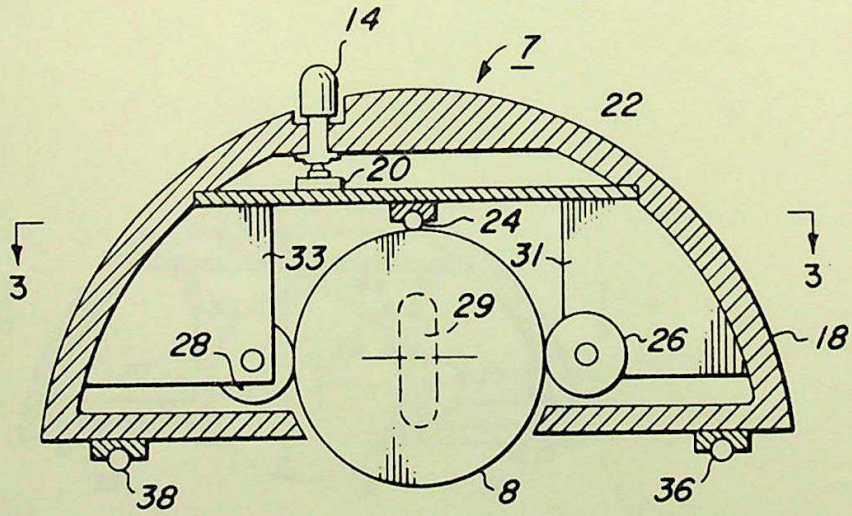
1,701,582	2/1929	Mengden	74/198
3,267,755	8/1966	Isely	74/198
3,269,190	8/1966	Laman	74/198
3,541,521	11/1970	Koster	340/324 A
3,541,541	11/1970	Engelbart	340/324 A

Primary Examiner—John W. Caldwell
Assistant Examiner—Marshall M. Curtis

[57] **ABSTRACT**

The invention relates to a position indicator which rides over a surface for controlling a cursor over a visual display. The indicator generates signals indicative of its positions to cause the cursor to be displayed on the display at a corresponding position. The indicator includes a control mechanism that comprises a transport sphere in combination with position wheels indicative of Cartesian coordinates. The sphere is in contact with the surface over which the indicator rides and the position wheels contact the sphere at a position on the sphere approximately 90° from the contact loci of the sphere and the surface.

14 Claims, 4 Drawing Figures



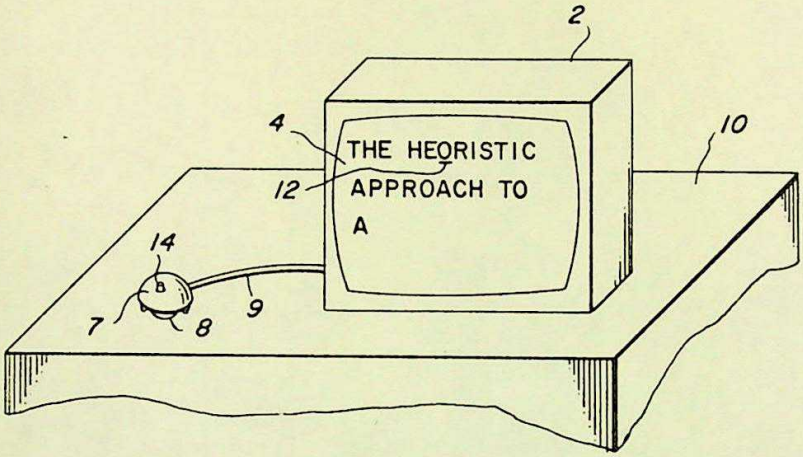

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FIG. 1

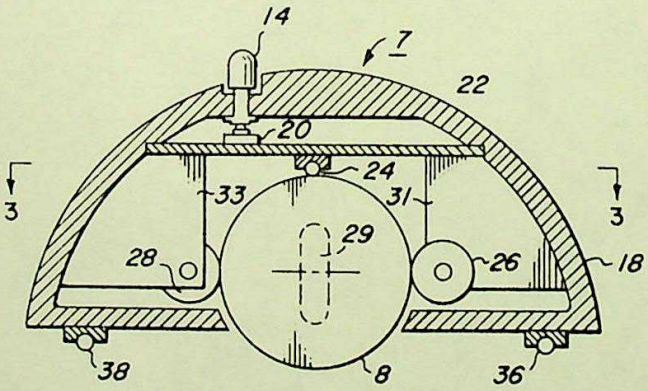
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FIG. 2

atching Pairs At AMOA Show

— Dynamo d that its ınd soccer ttraction at 10A Expo- ent place in l and Black

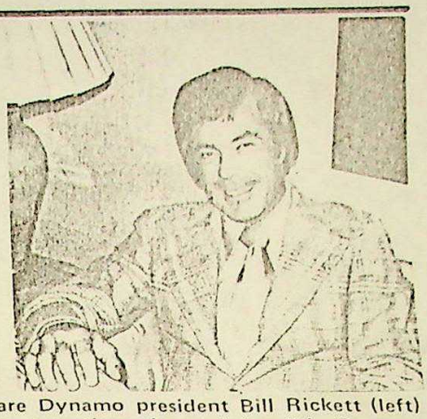
ve been en- by the ewis, vice- ewood has erator, but are being This gives ve finishes Black on . Each will any game

ynamo, ob- tables con- atures not s currently ve been es- regulation

size 2-1/4" cueball. This ball has been homogenously and phonicly cast as well as dynamically balanced to eliminate any imbalancing weights. The 1977 models also offer a built-in chalk and drink deflector to capture chalk, liquids or any other debris. This permits a ball to roll freely through the ball trap without hanging or clogging."

The Dynamo table also features special leg levelers which do not have to be removed during installation. The table is supported by solid wood legs with transverse metal braces and shims at eight points supporting its solid, one piece, imported natural slate.

Further information may be obtained by contacting local Dynamo distributors. The firm is located at 1805 S. Great Southwest Highway, Grand Prairie, Tex. 75050.



COMPANY EXECUTIVES: Seen here are Dynamo president Bill Rickett (left) and vice-president, John Lewis. The two executives observed that "the Dynamo mirrored tables have been enthusiastically accepted by the industry. They will thus be featured in our booth at the AMOA exposition." The executives added that the units have "been accepted by the players as well as the operators."

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MIDWAY MFG. CO. — A BALLY COMPANY — 10750 Grand Avenue, Franklin Park, Illinois 60131 phone (312) 451-1360

340-365 R AU 234 EX

MTR08 XR 4,067,431

buttons matter of choice in arrangement

United States Patent [19]

Whitaker

[11] **4,067,431**

[45] **Jan. 10, 1978**

[54] **COMBINATIONAL KEYBOARD WITH MOVABLE KEYS AND ADAPTED FOR ONE-HANDED KEYING OF NUMERICAL INFORMATION**

[76] Inventor: **Ranald O. Whitaker**, 4719 Squire Drive, Indianapolis, Ind. 46241

[21] Appl. No.: **666,480**

[22] Filed: **Mar. 12, 1976**

[51] **Int. Cl.**[2] **B41J 5/08**

[52] **U.S. Cl.** ..... **197/98**; 340/365 L

[58] **Field of Search** ..... 197/98; 335/206, 207, 335/205; 200/5 A, 159 B; 317/101, 112; 340/365; 235/145, 146; 35/5, 35 H

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,311,210	3/1967	Peroni	197/98
3,351,817	11/1967	Wadolny et al.	317/112
3,828,910	8/1974	Glay	197/98

FOREIGN PATENT DOCUMENTS

1,279,693	9/1963	Germany	197/98

OTHER PUBLICATIONS

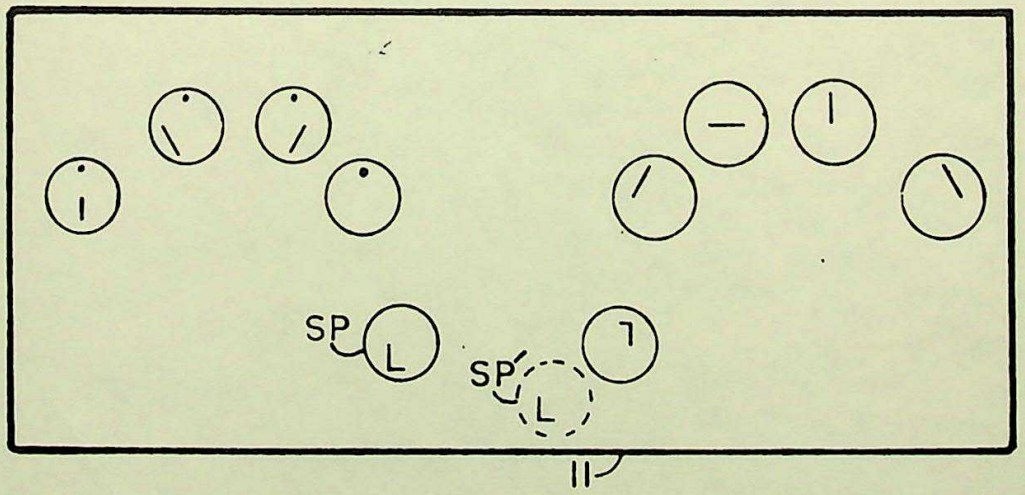
"Compact Keyboard" Beausoleil et al., IBM Tech. Disc. Bull., vol. 13, No. 11 4–1971, p. 3574.

Primary Examiner—Ralph T. Rader

[57] **ABSTRACT**

Combinational keyboards generally have 10 keys positioned to fall naturally under the fingertips of the two hands when the hands are in operating position. The present invention provides a keyboard with movable keys in order to accommodate the hand configurations of various operators. Combinational keyboards are generally arranged so that mathematics may be performed by the right hand only. An expanded one-handed character set results if the two thumb keys are placed adjacent each other so that the right thumb can operate both. This desirable feature is attained by (1) making the left thumb key sufficiently movable that it may be positioned adjacent the right thumb key, or (2) positioning the left hand keys so that the thumb keys are adjacent, or (3) providing an additional key operable by the right thumb.

5 Claims, 10 Drawing Figures



VENDING TIMES 7/79 p.60

COMPUTER DESIGN, JUNE 1980
p. 21

may operate via its own control mechanism, from a simple point to point protocol-transparent link to a shared multipoint packet network. This powerful concept, coupled with the almost totally independent interconnect characteristics of broadband, generates a useful and flexible medium for local area networks. The approach allows implementation of other services simultaneously on the available spectrum. In Mitrenet, an example of such a system, the packet network coexists with security, television, and point to point data transmission.

Broadband coaxial cable makes a tremendous variety of services available to network architects and designers. Given the ability to assign channels and data circuit functions with relative independence, many multimode configurations are possible. The simplest application, an asynchronous point to point data link, may reside "right next door" to computer file shipping channels on the spectrum. In the aggregate, usage may grow from 30 to 40 full duplex services supporting point to point terminal applications, to a heavily loaded system supporting everything from timesharing to file shipping, with no wiring changes required in the main system. These networks provide complete data communications services, supporting literally thousands of local users, as well as interconnection into more conventional long haul data communications utilities.

Rather conveniently, the appearance of all signals on the same coaxial cable simplifies broadband network monitoring. Spectrum surveillance equipment is an important aid in the tasks of monitoring signal levels and detecting failures. Monitoring systems may contain a realtime minicomputer with resident data base which may monitor signals, command loopback functions, and operate remote test equipment to isolate faults. They may also monitor, on a polled basis, the status of repeater units. It is much simpler to monitor signals on one coaxial cable than it is to contend with a complexity of baseband coaxial cables or twisted pairs. Existing technical control systems are capable of generating remote system status displays and of suggesting fault diagnosis techniques to repair personnel.

Other attractions in the broadband arena include frequency agile modems, capable of manual or computer-driven slot assignments; virtual trunk telephone modems; multiple channel packet networks, in which the traffic is offloaded to alternate channels during peak activity periods; and user-controlled multiprocessor access through channel assignment. The continuing development of these techniques makes broadband an even more attractive alternative for data network implementation.

Bibliography

R. M. Metcalfe and D. R. Boggs, "ETHERNET: Distributed Packet Switching for Local Computer Networks," *Communications of the ACM*, July 1976, pp 395-404

G. S. Roman, *The Design of Broadband Coaxial Cable Networks for Multimode Communications*, Mitre Corp, Report MTR-3527, Nov 1977

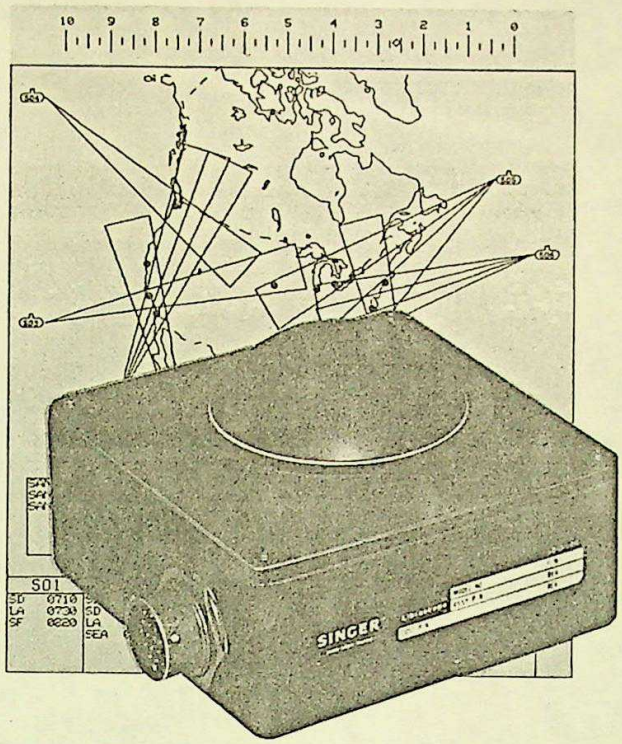
R. H. Sherman, M. G. Gable, and G. McClure, "Concepts, strategies for local data network architectures," *Data Communications*, July 1978, pp 39-49

J. E. Thornton, G. S. Christensen, and P. D. Jones, "A New Approach to Network Storage Management," *Computer Design*, Nov 1975, pp 81-85

D. G. Willard, "A Time Division Multiple Access System for Digital Communication," *Computer Design*, June 1974, pp 79-83

In next month's issue, Part 2 of this column discusses hardware components available for implementation of broadband local area networks.

Thinking CRT Cursor Control?



For Military or Rugged Industrial Applications

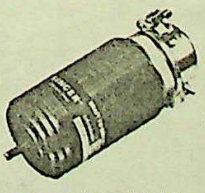
Librascope's Magnetic Trackball, with integral electronics, provides simultaneous X and Y scalar increments as inputs for digitally driven graphic displays, to position cursors, to add new data, or to modify existing data. Functions are generated by positioning two magnetic encoders with a hand driven ball to generate the orthogonal digital signals.

Designed for harsh environments, Librascope trackballs operate in the temperature range −55°F to +180°F and from sea level to an altitude of 50,000 feet. The unit complies with the environmental specifications of MIL-E-5272, Procedure 1 and MIL-T-5422.

Write or call for complete specifications. Librascope Division, The Singer Company, 833 Sonora Ave., Glendale, Calif. 91201. Telephone (213) 244-6541.

Librascope

a division of The SINGER Company



Librascope's magnetic encoders are the most reliable source of digital signals to represent a shaft angle. They offer long, maintenance free life in the harshest military or industrial environments. Output signals drive TTL integrated circuits directly. All models operate reliably in the temperature range −55°C to +125°C.

CIRCLE 14 ON INQUIRY CARD

United States Patent [19]

Colston

[11] **4,216,467**

[45] **Aug. 5, 1980**

[54] HAND CONTROLLER

[75] Inventor: **John R. Colston**, Annapolis, Md.

[73] Assignee: **Westinghouse Electric Corp.**, Pittsburgh, Pa.

[21] Appl. No.: **863,204**

[22] Filed: **Dec. 22, 1977**

[51] **Int. Cl.**[2] **G06F 3/02; G05G 7/00**

[52] **U.S. Cl.** ..... **340/365 L**; 73/133 R; 74/471 XY; 340/197; 414/4; 414/5; 414/6

[58] **Field of Search** ..... 340/177 R, 195, 197, 340/365 L; 73/133 R, 133 MC; 214/1 CM; 74/471, 471 XY; 244/83 E; 414/1-8

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,331,972	7/1967	Moller	244/83 E
3,350,956	11/1967	Monge	74/471 XY
3,447,766	6/1969	Palfreyman	74/471 R
3,561,280	2/1971	MacPhee et al.	74/471 XY
3,654,549	4/1972	Maurer et al.	340/195
3,729,990	5/1973	Oliver	244/83 E
3,904,042	9/1975	Colston	214/1 CM

OTHER PUBLICATIONS

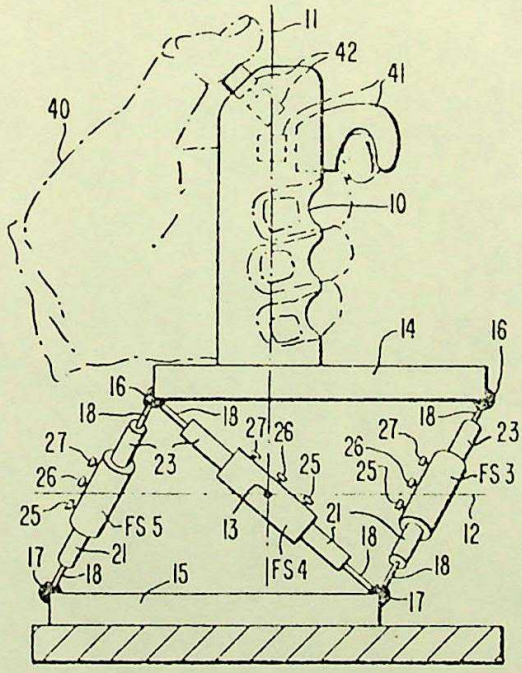
Stark Draper Laboratory, "Multi-moded Remote Manipulator System", Jan. 10, 1972.

Primary Examiner—John W. Caldwell, Sr.
Assistant Examiner—James J. Groody
Attorney, Agent, or Firm—Dean Schron

[57] **ABSTRACT**

A hand controller having a control handle member supported by a hexagonal array of three pairs of oppositely-angled force sensors provides for creation of control signals according to degree of input manual effort in any and all linear and rotary directions: left; right; up; down; fore; aft; forward; rearward; leftward and rightward; tilt moments; and clockwise and counterclockwise yaw moments.

5 Claims, 5 Drawing Figures



340-323 R AU 234 EX
9/16/80 XR 4,223,383

United States Patent [19] [11] **4,223,383**
Hannah [45] **Sep. 16, 1980**

[54] **ELECTRONIC CONTROL DEVICE FOR DECISIONS AND SCORING**

[76] Inventor: **James T. Hannah,** 1 Cooinda Ct., Salisbury Heights, South Australia, Australia

[21] Appl. No.: **949,620**

[22] Filed: **Oct. 10, 1978**

[30] **Foreign Application Priority Data**

Nov. 18, 1977 [AU] Australia PD2461

[51] **Int. Cl.**[2] **G06F 15/44;** G08B 23/00
[52] **U.S. Cl.** ..... **364/411;** 235/92 GA; 340/323 R
[58] **Field of Search** ..... 364/411; 235/92 GA; 273/1 E, 1 ES; 340/323 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

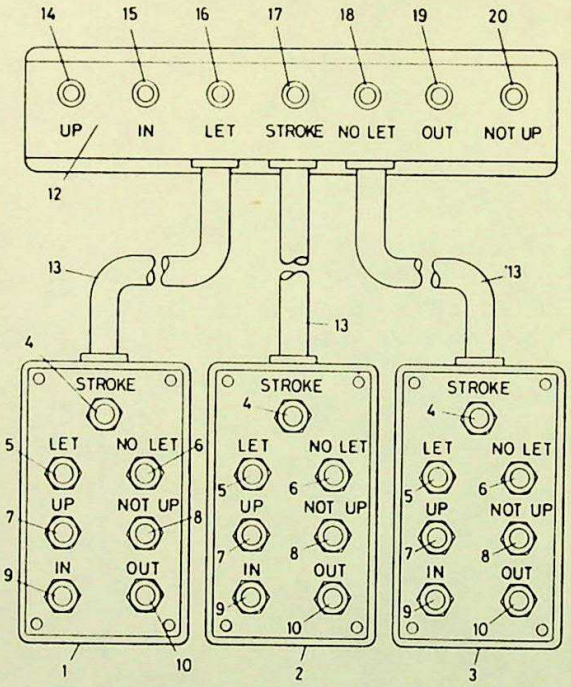
3,737,889	6/1973	Sweeny	235/92 GA X
3,959,640	5/1976	Syria	364/411
4,097,855	6/1978	Salvo	235/92 GA X

Primary Examiner—Jerry Smith
Attorney, Agent, or Firm—Pearne, Gordon, Sessions

[57] **ABSTRACT**

An electronic control device for decisions and scoring comprising at least three control boxes having scoring designations and coupled to an indicator panel through circuitry which displays the score of at least any two of the control boxes, used for squash and similar games.

7 Claims, 3 Drawing Figures



D14-114 AU 291 333 EX
D337A XR D 258,954

(1)

United Stat
Leon

[11] Des. 258,954
[45] ** Apr. 21, 1981

[54] CURSOR CONTROL FOR A DISPLAY SYSTEM

[75] Inventor: Nicholas M. Leon, Winchester, England

[73] Assignee: International Business Machines Corporation, Armonk, N.Y.

[**] Term: 14 Years

[21] Appl. No.: 933,710

[22] Filed: Aug. 15, 1978

[30] Foreign Application Priority Data

Feb. 28, 1978 [GB] United Kingdom 983530/78

[51] Int. Cl. ..... D13—03; D14—02
[52] U.S. Cl. D13/12; D14/40
[58] Field of Search ..... D13/11, 32, 12, 37; 200/5 R, 5 A, 5 D, 5 E, 5 F, 6 R, 6 A, 17 R, 293, 299, 302, 303; 74/471 XY; D14/40, 42, 45

[56] References Cited

U.S. PATENT DOCUMENTS

3,370,915 11/1973 Bennett et al. ..... 200/6 A
3,395,260 7/1968 Hamlin 200/302

OTHER PUBLICATIONS

Cromemco Computer Peripherals Catalog, 1976, p. 8, Joystick Console.

Primary Examiner—Susan J. Lucas
Attorney, Agent, or Firm—Edward S. Gershuny

[57] CLAIM

The ornamental design for a cursor control for a display system, as shown.

DESCRIPTION

FIG. 1 is a front right perspective of my design for a cursor control for a display system;
FIG. 2 is a side elevation of my design for a display system of FIG. 1;
FIG. 3 is a plan view of my design for a display system of FIG. 1;
FIG. 4 is a rear elevation of my design for a display system of FIG. 1;

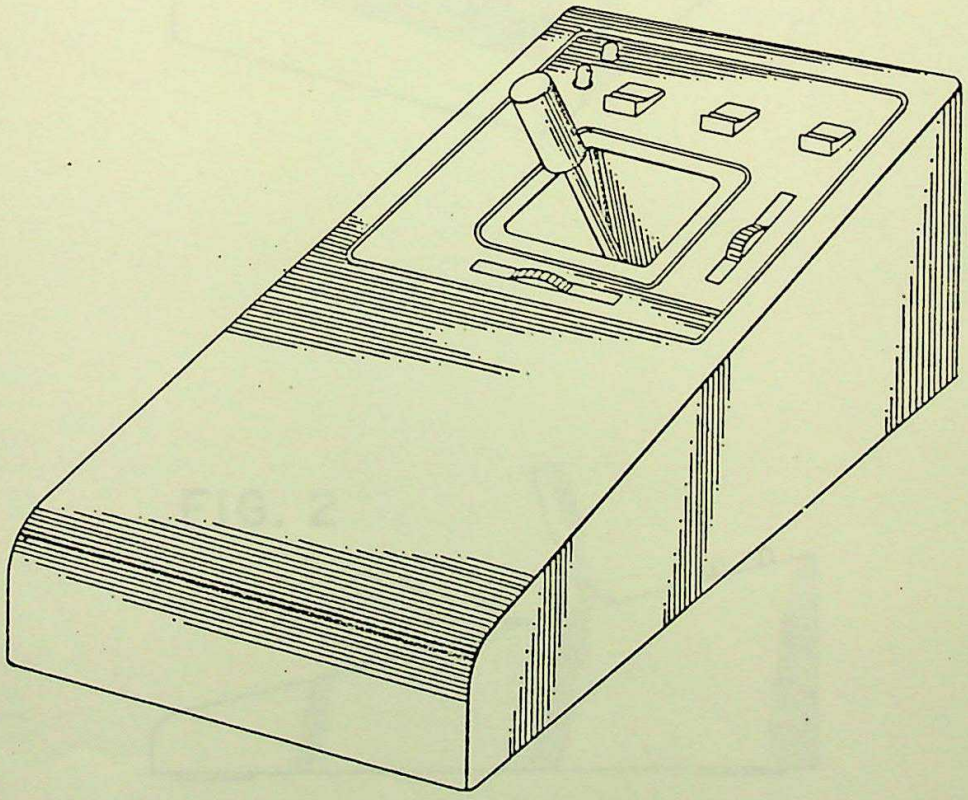


FIG. 1

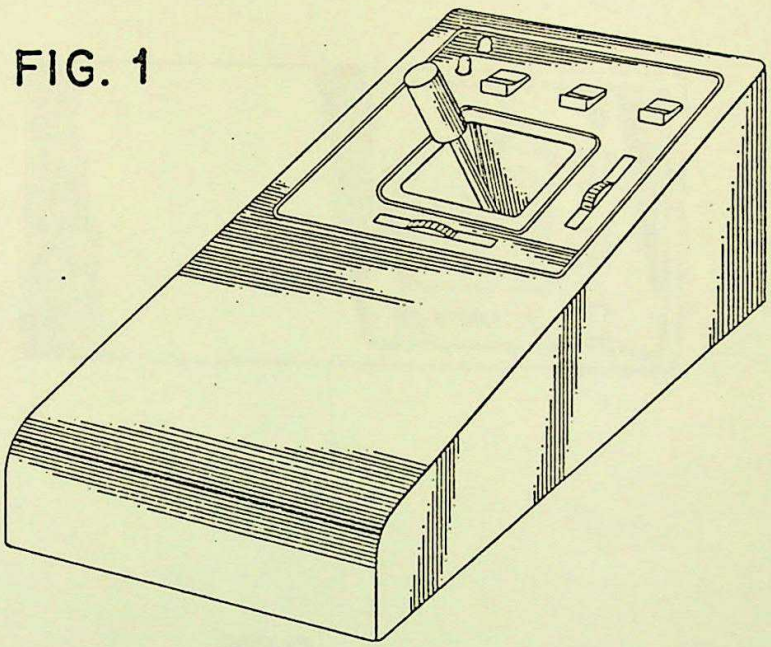


FIG. 2

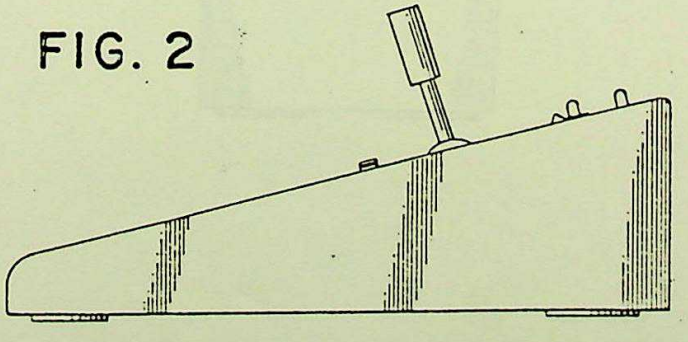


FIG. 3

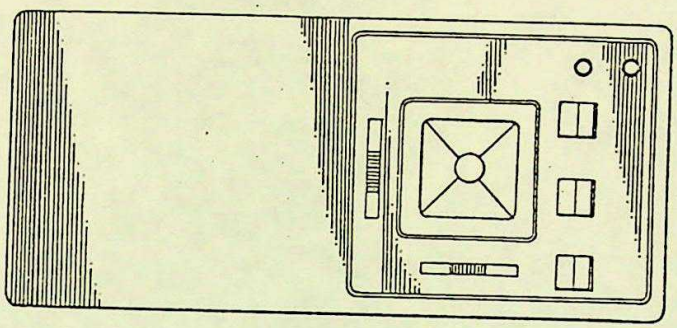
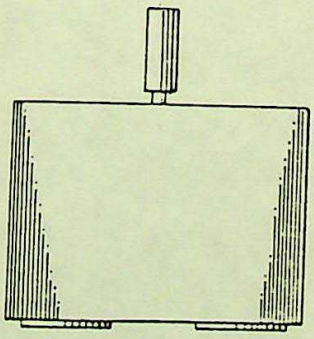


FIG. 4



D13/38
11/3/81 CR D 261,641

United States Patent [19]
Uzzell

[11] **Des. 261,641**
[45] ** **Nov. 3, 1981**

[54] **SWITCH OPERATED HAND SET FOR USE WITH TRAFFIC RADAR DEVICES OR THE LIKE**

[75] Inventor: **William D. Uzzell**, Neosho County, Kans.

[73] Assignee: **Kustom Electronics, Inc.**, Shawnee Mission, Kans.

[**] Term: **14 Years**

[21] Appl. No.: **6,841**

[22] Filed: **Jan. 26, 1979**

[51] **Int. Cl.** ..... **D13—03**
[52] **U.S. Cl.** **D13/38**
[58] **Field of Search** ..... D13/32, 38; 200/5 R, 200/157, 159 R, 293, 298

[56] **References Cited**

U.S. PATENT DOCUMENTS

D. 186,075 9/1959 Ford D13/38
D. 192,468 3/1962 Sundberg et al. D13/38

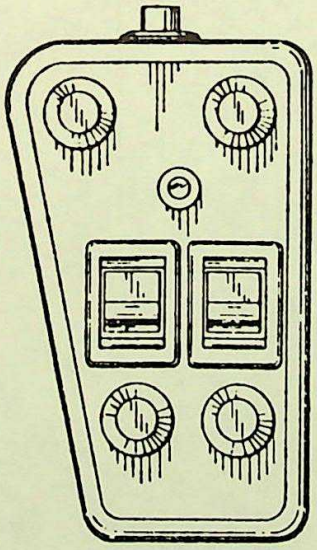
Primary Examiner—Peter M. Caun
Attorney, Agent, or Firm—Lowe, Kokjer, Kircher, Wharton & Bowman

[57] **CLAIM**

The ornamental design for a switch operated hand set for use with traffic radar devices or the like, as shown and described.

DESCRIPTION

FIG. 1 is a front elevational view of the switch operated hand set for use with traffic radar devices or the like embodying my design;
FIG. 2 is a rear elevational view of the design shown in FIG. 1;
FIG. 3 is a left side elevational view of the design shown in FIG. 1;
FIG. 4 is a right side elevational view of the design shown in FIG. 1;
FIG. 5 is a top plan view of the design shown in FIG. 1; and
FIG. 6 is a bottom plan view of the design shown in FIG. 1.



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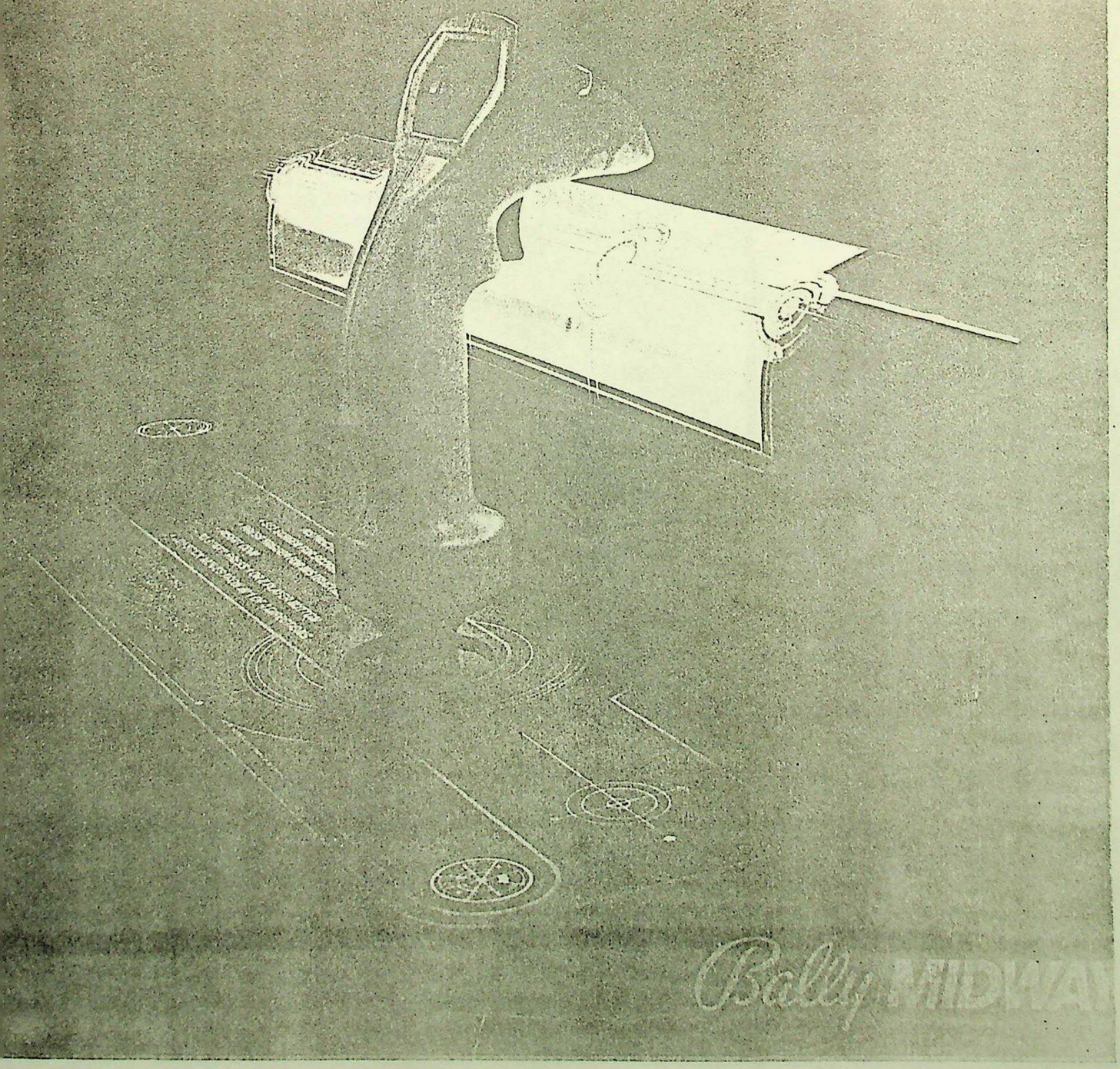


Bally MIDWAY

Please return to M. Fifer

United States Patent [19]

Wolf

[11] 4,331,849

[45] May 25, 1982

[54] LEVER CONTROL FOR REALISTIC DRIVING TOY

[76] Inventor: Tobin Wolf, 285 Aycrigg Ave., Passaic, N.J. 07055

[21] Appl. No.: 140,869

[22] Filed: Apr. 16, 1980

[51] Int. Cl.[3] H01H 25/04

[52] U.S. Cl. ..... 200/61.85; 46/249; 46/251; 200/6 A; 200/16 C; 200/252

[58] Field of Search ..... 200/6 A, 6 R, 6 B, 6 BA, 200/6 BB, 6 C, 1 V, 16 R, 11 G, 61.85, 157, 163, 164 R, 164 A, 252, 4; 46/248, 249, 251, 253

[56] References Cited

U.S. PATENT DOCUMENTS

3,030,459	4/1972	Elliott et al.	200/6 A
3,643,294	2/1972	Wilson	200/6 A
4,041,258	8/1977	Harada	200/6 A

FOREIGN PATENT DOCUMENTS

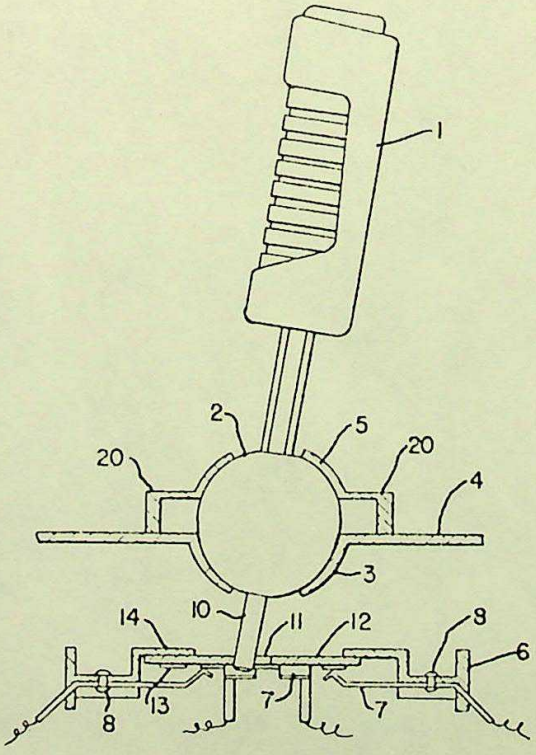
1462860	1/1977	United Kingdom	46/23

Primary Examiner—J. V. Truhe
Assistant Examiner—Morris Ginsburg
Attorney, Agent, or Firm—Jay M. Cantor

[57] ABSTRACT

A control lever for a toy wherein the lever has two degrees of freedom and includes a stem portion loosely engaging a hole centrally located in an electrically non-conductive switch plate. The square switch plate has four rectangular electrically conductive areas positioned adjacent the sides thereof. The switch plate is held against a frame by means of four sets of flexible contacts, each set associated with one of the conductive areas. The switch plate is movable with two degrees of freedom by movement of the lever, whereby none, one or two different adjacent pairs of flexible contacts will be positioned on a rectangular conductive area. In this manner, two motors which control the direction of the vehicle can be selectively off, rotating in a forward direction or rotating in a rearward direction. In accordance with a second embodiment of the invention the switch plate has a square conductive area with a non-conductive interior on both surfaces of the non-conductive switch plate, the flexible contacts being provided in pairs, one positioned above the switch plate and the other positioned below the switch plate.

11 Claims, 6 Drawing Figures



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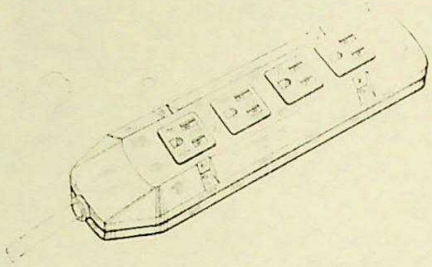
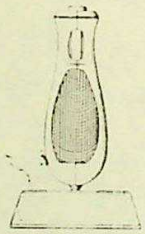
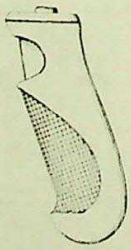
270,629
MULTIPLE OUTLET STRIP
Douglas Drew, Toronto, Canada, assignor to Noma Canada Ltd., Scarborough, Canada
Filed Apr. 13, 1981, Ser. No. 253,996
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—30



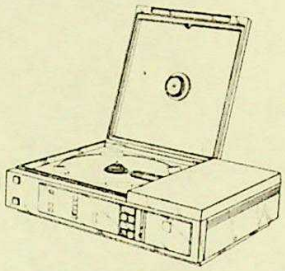
270,630
VIDEO GAME CONTROL UNIT OR THE LIKE
Jeffrey M. Moskin, 3106 Barry Ave., Los Angeles, Calif. 90066, and Keith J. Wertz, 2533 S. Deegan Dr., Santa Ana, Calif. 92704
Filed Jun. 4, 1982, Ser. No. 384,900
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—38



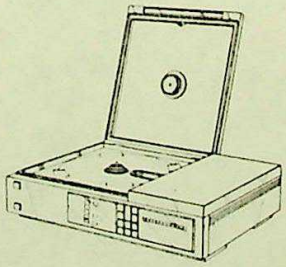
270,631
VIDEO GAME CONTROL GRIP OR THE LIKE
Jeffrey M. Moskin, 3106 Barry Ave., Los Angeles, Calif. 90066, and Keith J. Wertz, 2533 S. Deegan Dr., Santa Ana, Calif. 92704
Filed Jun. 4, 1982, Ser. No. 384,901
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—38



270,632
VIDEO DISC PLAYER
Hideaki Kurata; Hirokazu Hamano, and Hiroshi Shindo, all of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Filed Jun. 15, 1981, Ser. No. 273,810
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—1



270,633
VIDEO DISC PLAYER
Hiroshi Shindo; Hideaki Kurata, and Hirokazu Hamano, all of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Filed Jun. 15, 1981, Ser. No. 273,811
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—1



D21/48

(12) UK Patent Application (19) GB (11) 2 125 947 A

SCIENCE REFERENCE LIBRARY

(21) Application No 8322946
(22) Date of filing 26 Aug 1983
(30) Priority data
(31) 413000
(32) 30 Aug 1982
(33) United States of America (US)
(43) Application published 14 Mar 1984
(51) INT CL³ G05G 9/04
(52) Domestic classification F2Y 3112 SD U1S 1172 2065 F2Y
(56) Documents cited GBA 2046549 GBA 2039007 GB 0925965 US 3482465
(58) Field of search F2Y

(71) Applicant
Suncom Incorporated (USA—Illinois), 650 E Anthony Trail, Northbrook, State of Illinois 60062, United States of America

(72) Inventor
Marino Cecchi

(74) Agent and/or Address for Service
W. P. Thompson & Co., Coopers Building, Church Street, Liverpool L1 3AB

(54) Joy stick

(57) A joy stick assembly has a joy stick (26) resiliently mounted with a rubber tyre valve stem (38) in an opening (44) through a hand holdable housing (22, 24), so that it is normally biased to a neutral position. The joy stick is manually pivotable in any one of a plurality of directions through a 360° arc, and has a conductive sphere (48) at its opposite end. Four contacts (56, 60) are shown in Fig. 2 are positioned at 90° apart around the sphere and out of contact therewith when the sphere is in its neutral equilibrium position, and the joy stick is manipulable to establish electrical connections between the sphere and individual ones or adjacent pairs of the contacts to provide a signal from the sphere to the contact or contacts. With separate electrical connections established between the sphere and the four contacts and a TV video game, the joy stick is manipulable to supply nine discrete signals to the game, four upon electrical connections between the sphere and individual ones of the contacts, another four upon electrical connections between the sphere and adjacent pairs of contacts and a further one when the sphere is in its neutral position.

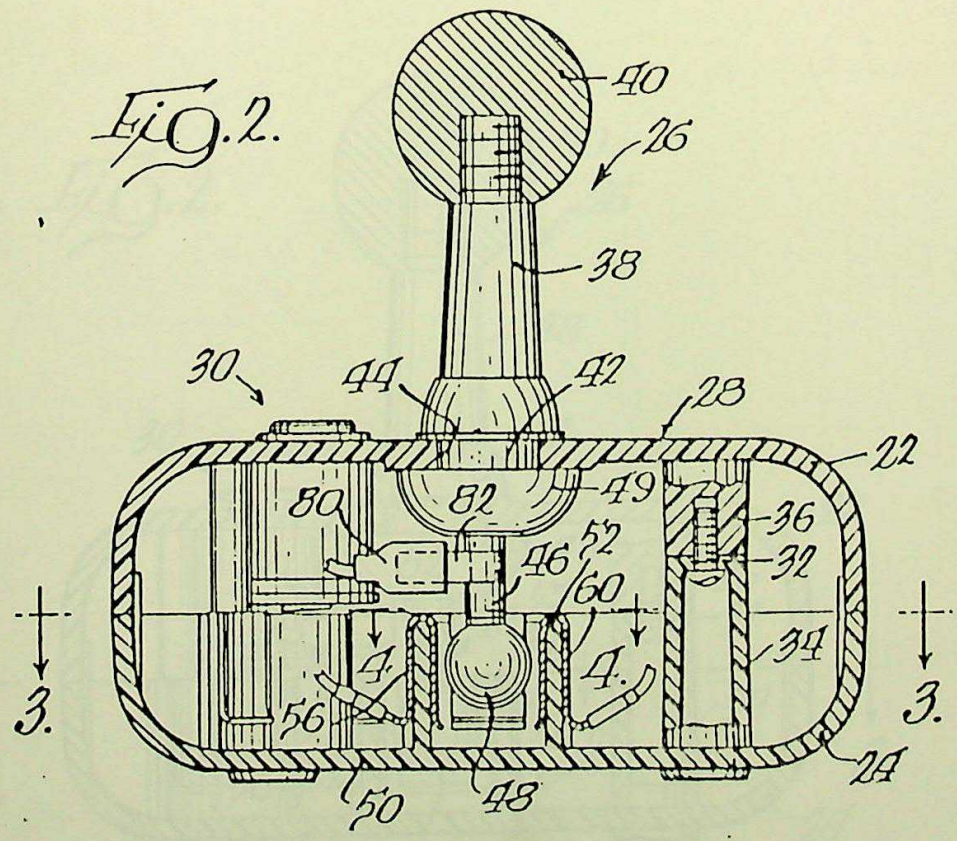


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Fig. 1.

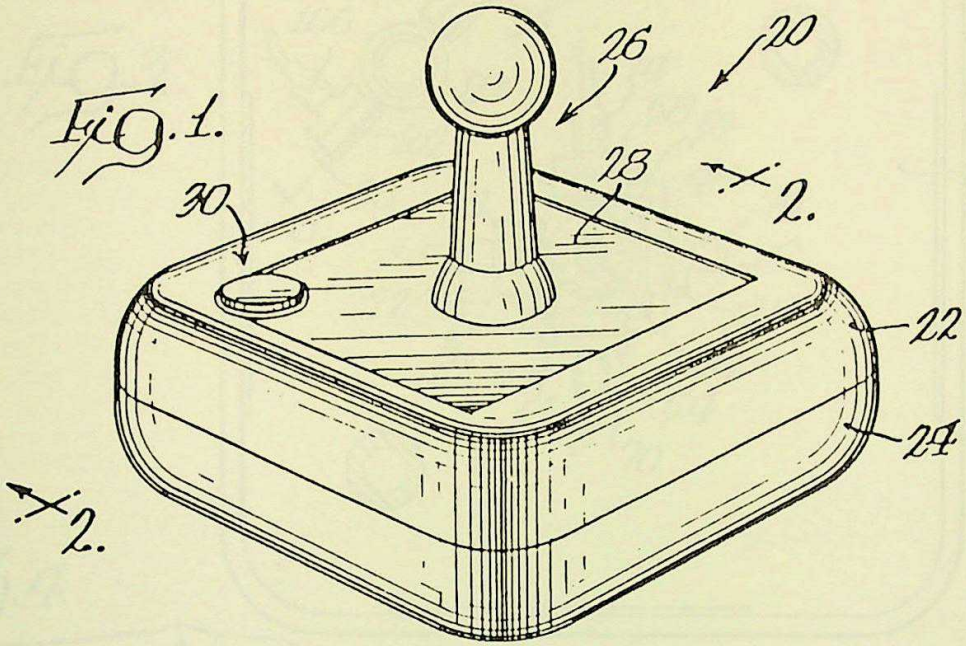


Fig. 2.

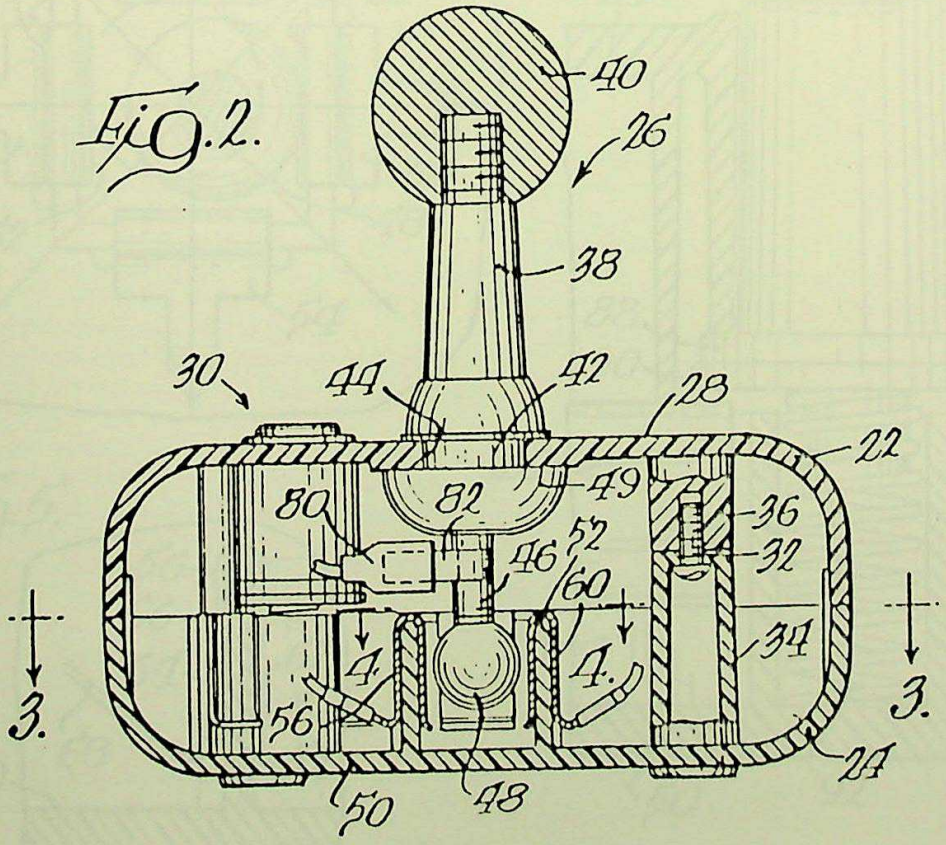


Fig.3.

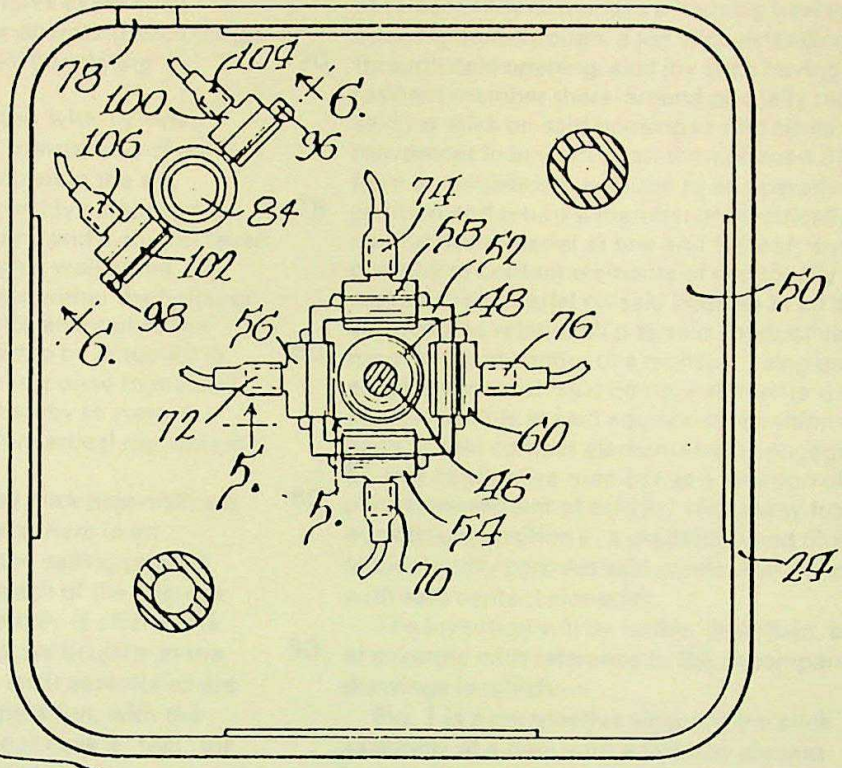


Fig.4.

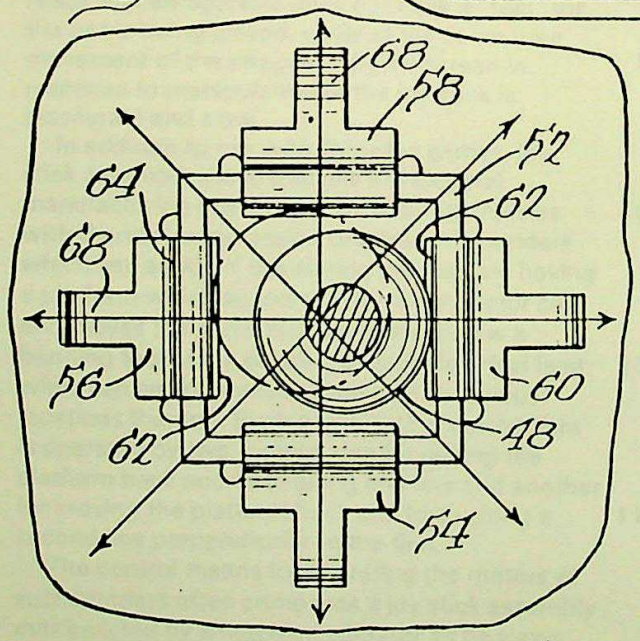


Fig.6.

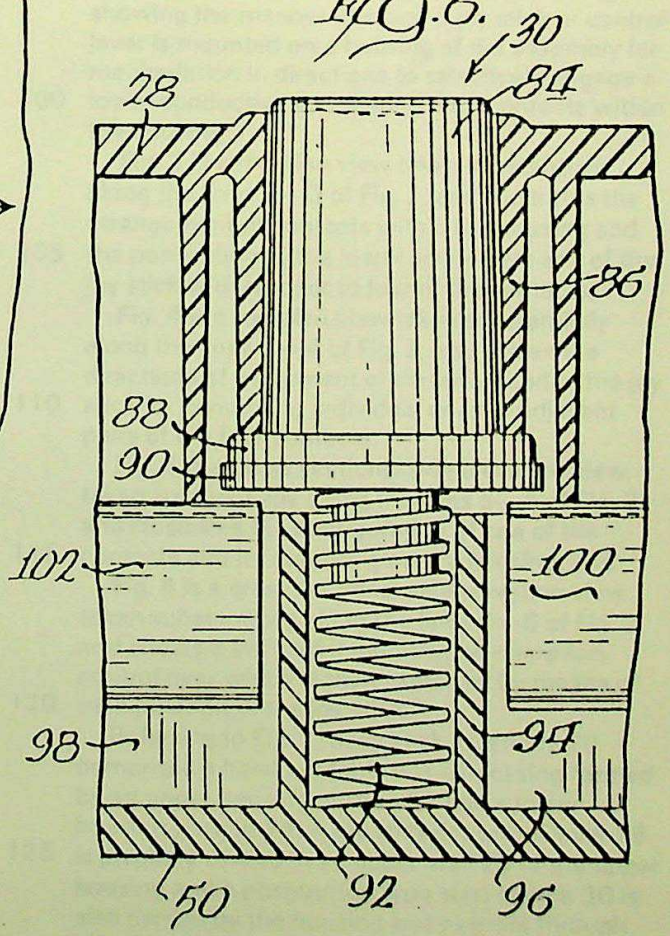
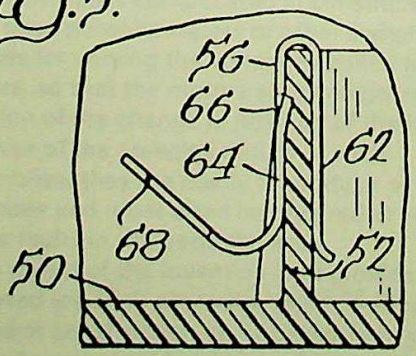


Fig.5.



SPECIFICATION

Joy stick

The present invention relates to joy stick assemblies, for example, for operating such things as TV video games and X—Y translating mechanisms.

Joy stick assemblies for use with TV video games for controlling X—Y translations of an image on a TV screen are known in the art. Conventionally, such an assembly comprises a hand holdable box-like housing and a control lever or joy stick extending through a wall of the housing. Switches or contacts within the housing are electrically connected with an input to the video game, and are arranged to be actuated or contacted by the joy stick in response to manual manipulation of the same, thereby to control bidirectional horizontal and/or vertical movement of an image on the screen.

A disadvantage of such joy stick assemblies is that, in an attempt to fabricate them in an economical manner so that the selling price of video games will be within reach of the average purchaser, the resulting assembly is often quite flimsy and prone to breakage, particularly in the hands of a child. In addition, such assemblies are often quite spongy in their operation, with the result that an operator does not have a "feel" for the game being played, while at the same time movement of the image on the TV screen in response to manipulation of the joy stick is inaccurate and slow.

In addition to use with TV video games, joy stick assemblies also find use in industrial manufacturing operations, such for example as with thermal compression or ultrasonic bonders which use an X—Y translating mechanism having a platform which supports a semi-conductor chip and moves the same relative to and below a bonding tool of the bonder, so that electrical lead wires can be connected to the chip at various locations thereon. Such a translating mechanism is operated by two motors, one for driving the platform back and forth along one line and another for moving the platform back and forth along a second line perpendicular to the first.

The control means for operating the motors of such bonders often comprises a joy stick assembly manipulated by a machine operator as he views the work area of the chip through a microscope. Conventional joy stick assemblies for this purpose have been quite complicated in construction, and have used potentiometers or other switching devices for varying the voltages applied to the motors, so that the motors stop and go as a function of the change in position of the joy stick. Because of the complex nature of such assemblies, they are costly to produce and assemble and must often be repaired or replaced due to faults in the parts thereof.

An object of the invention is to provide an improved joy stick assembly which is simple and rugged in construction, is inexpensive to produce and maintain, provides a very accurate "feel" to the operator and can be used as a replacement part for a conventional joy stick device.

In accordance with the present invention, a joy stick assembly comprises a housing having an opening therethrough, a joy stick extending through said opening, said joy stick having a resilient member there-around pivotally mounting said joy stick on said housing in said opening for movement in any direction throughout a 360° arc from an equilibrium position to an operative position and return a member of electrically conductive material at one end thereof; and a plurality of contact elements of electrically conductive material on said housing in an array in surrounding relationship to said conductive member, said conductive member being out of engagement with said contact elements when said joy stick is in said equilibrium position and each of said contact elements being engageable by said conductive member as a function of pivotal movement of said joy stick away from said equilibrium position in a predetermined direction to electrically connect said conductive member with said contact elements.

The invention will be further described, by way of example with reference to the accompanying drawings in which:—

Fig. 1 is a perspective view of a joy stick assembly of a type with which the present invention may advantageously be used;

Fig. 2 is a cross sectional side elevation view taken substantially along the lines 2—2 of Fig. 1, showing the manner in which a joy stick or control lever is mounted on a housing of the assembly for manipulation in directions to selectively engage a lower conductive end thereof with contacts within the housing;

Fig. 3 is a top plan view taken substantially along the lines 3—3 of Fig. 2, and illustrates the arrangement of contacts within the housing and the positioning of the lower conductive end of the joy stick with respect to four of the contacts;

Fig. 4 is a top plan view taken substantially along the lines 4—4 of Fig. 2, and shows the directions of movement of the lower end of the joy stick for contacting individual ones or adjacent pairs of the four contacts;

Fig. 5 is a cross sectional side elevation view taken substantially along the lines 5—5 of Fig. 3, and illustrates the configuration of one of the contacts and its mounting on the housing; and

Fig. 6 is a cross sectional side elevation view taken substantially along the lines 6—6 of Fig. 3, and shows a switch for initiating an operation, control over which is then exercised by means of manipulation of the joy stick.

Referring to Fig. 1, a joy stick assembly 20 comprises a hand holdable box-like casing formed by an upper housing portion 22 and a lower housing portion 24. A joy stick or control lever 26 is pivotally carried in an upper wall 28 of the upper housing and a pushbutton type start switch 30 is also carried by the housing and extends through the wall. The joy stick assembly is particularly

TV video game (not shown), or other types of X—Y translating mechanisms, and to that end the start switch is actuable to start a game while the joy stick is manually manipulable for selective control over movement of an image on a TV screen (not shown). As is conventional and understood in the art, the joy stick is movable forward, backward, left and right to control respective vertical up and down and horizontal left and right movement of the image on the screen, and is also movable towards the four corners of the case for simultaneous up or down and left or right movement of the image.

Referring also to Figs. 2, 3 and 5, when assembled, the upper and lower housing portions 22 and 24 are fastened together by means of screws 32 extended through upstanding hollow columns 34 on the lower housing and threaded into protuberances 36 depending from the upper housing. In the preferred embodiment, the joy stick 26 comprises a metallic or otherwise rigid insert sheathed in a resilient material, such for example as a conventional tyre valve stem 38 which has threaded onto or otherwise secured to its upper end a spherical knob 40 and is received by means of a groove 42 in a resilient rubber casing or sheath thereof in an opening 44 in the wall 28. The valve stem 38 is modified to carry a downwardly extending conductive rod 46 at its lower end, and a conductive sphere 48 is at the bottom of the rod. Because the outer surface or casing of the valve stem is formed of resilient rubber, and in particular an enlarged generally bulbous lower end 49 thereof, upon being placed in the housing opening 44 it is automatically pivotally mounted therein and on the housing 22, so that, by means of manual manipulation of the spherical knob 40, the joy stick may be pivoted in any one of a plurality of directions through a 360° arc. When the knob is released, the resilience of the rubber returns the joy stick to a neutral upright position of equilibrium.

Extending upwardly from a base wall 50 of the lower housing 24 and positioned about the conductive sphere 48 is an open ended generally square enclosure 52 having four walls on which are mounted respective conductive contacts 54, 56, 58 and 60. As best shown in Fig. 5, each contact is in the form of a clip received over a respective one of the walls of the enclosure 52, and includes a surface 62 to the interior of the enclosure, a surface 64 to the exterior of the enclosure and having a tab 66 received within a recess in the wall to secure the contact thereon, and a male connector 68 extending outwardly from a lower end of the surface 64. Female connectors 70, 72, 74 and 76 are coupled with the male connectors of the respective contacts 54, 56, 58 and 60, and individual wires connected with the female connectors extend outwardly of the casing through a passage 78 in the lower housing 24 for connection with the TV video game. A female connector 80 is coupled with a male connector 82 on the conductive rod 46 of the joy stick 26, and a wire also extends from that connector through the passage for connection with the game.

As shown in Figs. 2 and 3, when the joy stick 26 is not manually manipulated and is automatically being maintained in its neutral or upright position by the resilience of the tyre valve stem 38, the conductive sphere 48 is positioned between and out of electrical contact with the surfaces 62 of the contacts 54, 56, 58 and 60. The spacing between facing edges of the surfaces 62 of adjacent contacts is greater than the diameter of the sphere, and in normal use of the joy stick assembly ground potential or a reference voltage is coupled from the video game to the sphere through the connectors 80 and 82, such that, upon movement of the sphere into electrical engagement with one or a pair of the contacts, the ground or reference potential is coupled through the contact or contacts and their associated connectors and wires with the game to control movement of an image on the TV screen. Thus, and as shown in Fig. 4, by selective manual manipulation of the spherical knob 40, the conductive sphere 48 may be moved forwards, backwards or sideways into electrical contact with any one of the surfaces 62 of the contacts 54, 56, 58 and 60, thereby to supply four discrete electrical signals to the game. The sphere may also be moved towards a selected corner of the casing and into simultaneous engagement with a selected adjacent pair of the contacts, thereby supplying four additional discrete electrical signals to the game. In addition, when the joy stick is in its neutral position and the sphere is not electrically connected with any of the contacts, a further electrically distinct signal is generated and applied to the game, i.e., the absence of ground or reference potential on any of the contacts. Consequently, nine discrete electrical signals may be generated for application to the game, such that the eight signals generated by contact of the sphere with the contacts provide for bidirectional horizontal and/or vertical movement of an image on the TV screen, with the signal generated in response to the sphere being in its neutral or equilibrium position and out of engagement with any of the contacts, causing the image to remain stationary or otherwise move in a preprogrammed fashion. The particular structure of the joy stick enables very accurate and rapid control over the game.

As is also known, joy stick assemblies commonly include some means for controlling initiation of an operation, such as initiation of a game or firing of a cursor in the case of use with a TV video game, and to that end the start switch 30 is provided. As shown in Figs. 3 and 6, the start switch includes an actuator button 84 slidably received within a tubular extension 86 extending downwardly from the upper wall 28 of the housing 22. The button has a lower radial flange 88 and a conductive lower surface 90, and is normally urged upwardly by a spring 92 captured within a tubular extension

tubular extension 86.

Positioned on respective walls 96 and 98 upstanding from the base wall 50 are a pair of contacts 100 and 102, which preferably are identical to the contacts 54, 56, 58 and 60. The contacts 100 and 102 are positioned to underlie opposite sides of the conductive lower surface 90 of the actuator button 84, and are coupled through respective female connectors 104 and 106 and associates wires with the video game, the wires also passing through the lower housing passage 78. One of the contacts would normally be coupled with ground or reference potential from the game, whereby, upon depression of the actuator button and movement of the conductive lower surface of the button against the contacts, the potential is connected with the other contact to provide a signal to start the game.

The invention thus provides an improved joy stick assembly for TV video games or other operations, either industrial or otherwise, where control over X—Y coordinate movement is required. Because the resilience of the joy stick is provided by the resilient sheath on its outer surface, which in the preferred embodiment is the rubber sheath on a conventional tyre valve stem, and by virtue of a conductive sphere being moved directly into engagement with a contact upon manipulation of the joy stick, thereby to generate signals without need to actuate mechanical switches, a user has a very definite or precise "feel" when manipulating the joy stick, which results in highly accurate and fast control. At the same time, since the casing of the assembly may be moulded in plastic, the joy stick itself may be a conventional tyre valve stem and the electrical contacts may be simple clips, the cost of the assembly is drastically reduced while at the same time it has significantly improved reliability and durability as compared with prior devices.

While one embodiment of the invention has been described in detail, various modifications and other embodiments thereof may be devised by one skilled in the art without departing from the scope of the invention, as defined in the claims.

CLAIMS

1. A joy stick assembly comprising a housing having an opening therethrough; a joy stick extending through said opening, said joy stick having a resilient member therearound pivotally mounting said joy stick on said housing in said opening for movement in any direction throughout a 360° arc from an equilibrium position to an operative position and return and a member of electrically conductive material at one end thereof; and a plurality of contact elements of electrically conductive material on said housing in an array in surrounding relationship to said conductive member, said conductive member being out of engagement with said contact elements when said joy stick is in said equilibrium position and each of said contact elements being engageable by said conductive member as a function of pivotal movement of said joy stick away from said equilibrium position in a predetermined direction to electrically connect said conductive member with said contact elements.

2. A joy stick assembly as claimed in claim 1, wherein said housing has surface extensions mounting said contact elements in said array around said conductive member.

3. A joy stick assembly as claimed in claim 1 or 2 wherein said joy stick comprises a tyre valve stem having a resilient outer casing with an annular groove therein received in said housing opening to pivotally mount said joy stick on said housing, and having a manually manipulable knob at an end of said tyre valve stem opposite from said conductive member for accommodating manual pivotal movement of said joy stick.

4. A joy stick assembly as claimed in any of claims 1 to 3, wherein said conductive member comprises an electrically conductive sphere.

5. A joy stick assembly as claimed in any of claims 1 to 4, wherein said conductive member comprises a rod of electrically conductive material fastened at one end to said one end of said joy stick and a sphere of electrically conductive material carried on an electrically connected with an opposite end of said rod, said contact elements being in an array in surrounding relationship to said sphere.

6. A joy stick assembly as claimed in any of claims 1 to 5, including means for establishing separate electrical connections with each of said contact elements and said conductive member.

7. A joy stick assembly as claimed in any of claims 1 to 6, wherein said contact elements form an array of four contact elements positioned 90° apart in surrounding relationship to said conductive member with the spacings between adjacent pairs of contact elements being such that said joy stick is pivotable from said equilibrium position both to engage and electrically connect said conductive member with selected adjacent pairs of said contact elements, thereby to electrically connect said selected adjacent pairs of contact elements and said conductive member.

8. A joy stick assembly as claimed in any of claims 1 to 6, wherein said housing has an open-ended generally square extension defining four walls positioned 90° apart, said contact elements are four in number and each is mounted on a respective one of said walls and has a portion extending across the wall to the interior of said square extension, and wherein said conductive member extends into said square extension through said open end thereof in spaced relationship from said portions of said contact elements when said joy stick is in said equilibrium position, said joy stick being pivotable in predetermined directions from said equilibrium position to engage and electrically connect said conductive member with said portion of selected ones of said contact elements.

9. A joy stick assembly as claimed in claim 8, wherein the spacing between said portions of adjacent pairs of contact elements is such that said joy stick is

directions away from said equilibrium position to simultaneously engage and electrically connect said conductive member with selected adjacent pairs of contact elements.

10. A joy stick assembly as claimed in claims 4 and 8, wherein said contacts grip opposite sides of said walls, and said portions of said contacts to the interior of said generally square extension have a lateral extent across said walls which is insufficient to engage and establish an electrical connection between adjacent pairs of said contact elements but sufficient to enable said sphere to simultaneously engage and electrically contact selected adjacent pairs of said contact elements upon pivotal movement of said joy stick in predetermined directions away from said equilibrium position.

11. A joy stick assembly as claimed in claim 8, 9 or 10, wherein each contact element comprises a generally U-shaped electrically conductive clip over ends of said walls at said open end of said generally square extension.

12. A joy stick assembly as claimed in claim 11, wherein outer portions of said contact elements to exterior of said extension are formed with tabs and outer surfaces of said walls have recesses for receiving said tabs to secure said contact elements thereon.

13. A joy stick assembly as claimed in any of claims 1 to 12, including switch means on said housing having a pair of switch contacts, said switch means being separate and distinct from said conductive member and said contact elements and being manually actuable to establish an electrical connection between said switch contacts.

14. A joy stick assembly as claimed in claim 13, wherein said housing has a second opening therethrough and said switch means comprises a manually manipulable actuator slidably received in said second opening, an electrically conductive surface on one end of said actuator, said pair of switch contacts being supported on said housing in alignment with said conductive surface for contact therewith upon sliding movement of said actuator towards said switch contacts, and means for yieldably urging said actuator in a direction to normally maintain a spacing between said switch contacts and said conductive surface, said actuator being manually movable against said urging means to bring said conductive surface into engagement with said switch contacts to establish said electrical connection therebetween.

15. A joy stick assembly as claimed in claim 14, wherein said housing has surface extensions for mounting said switch contacts.

16. A joy stick assembly as claimed in any of claims 1 to 15, wherein said housing comprises first and second housing portions interconnected to define a chamber therebetween, said first housing portion having said opening for pivotally mounting said joy stick with said one end of said joy stick and said conductive member extending to the interior of said chamber, said contact elements being mounted on said second housing portion in said array around said conductive member and to the interior of said chamber.

17. A joy stick assembly as claimed in any of claims 1 to 16, including a plurality of electrical conductors, and means for connecting individual ones of said electrical conductors with respective ones of said contact elements and with said conductive member, said housing having a further opening therethrough and said conductors extending through said further opening to the exterior of said housing.

18. A joy stick assembly constructed substantially as herein described with reference to and as illustrated in the accompanying drawings.

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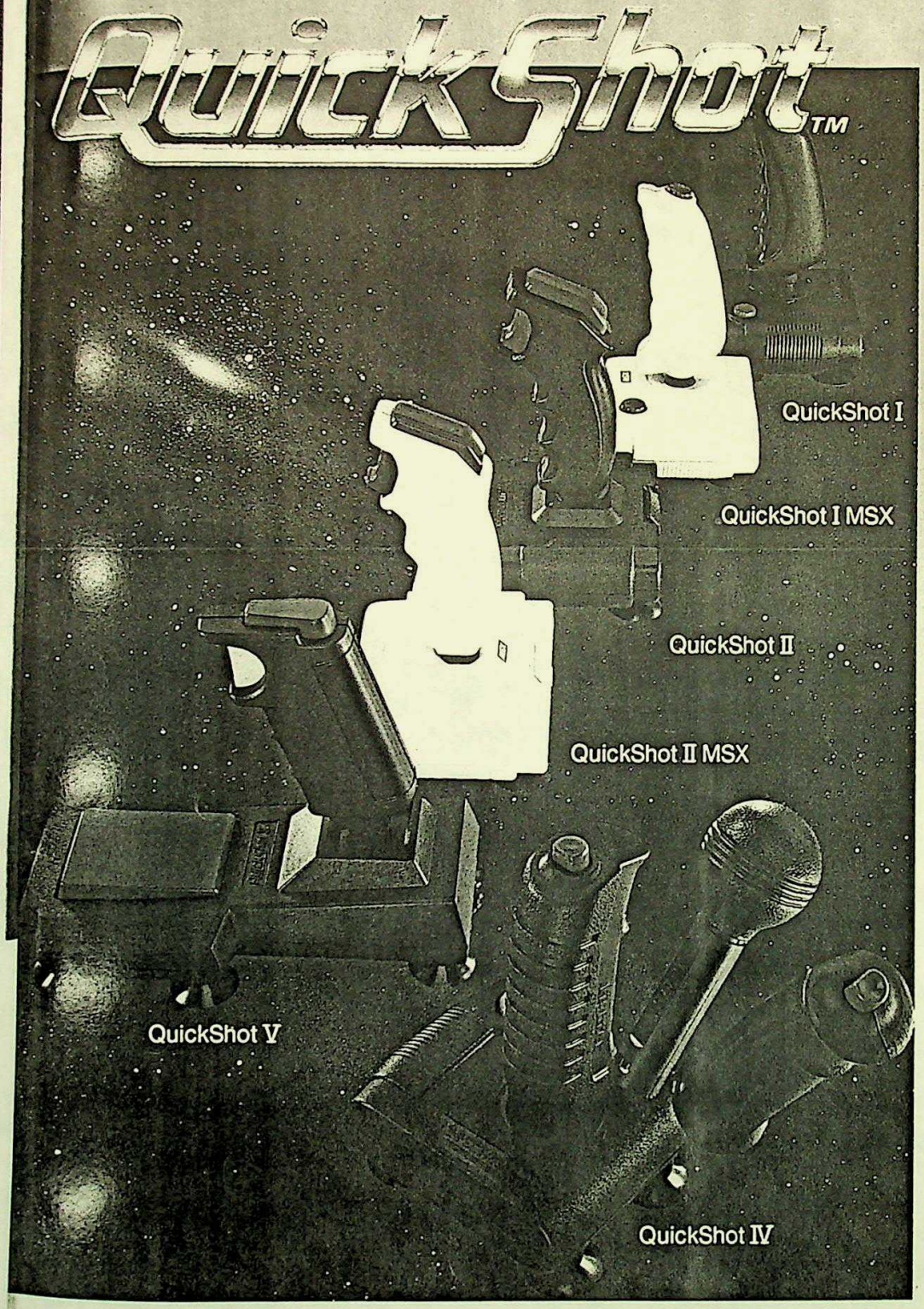
SVI "QuickShot" Joysticks.
They grip the games & grab the market.



Video games are getting tougher each day and so is the market. SVI "QuickShot" joysticks give you a better chance to beat the competition because they give players a better grip on games.

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There are now five other models in the family. They all have the winning features of the "QuickShot I" plus more. "QuickShot II" has an auto-fire switch. "QuickShot IV" comes with three interchangeable controllers for different games. For the new wave of MSX computers, there's "QuickShot V" which features a novel touch-firing pad as well as the MSX "QuickShot I" and MSX "QuickShot II".

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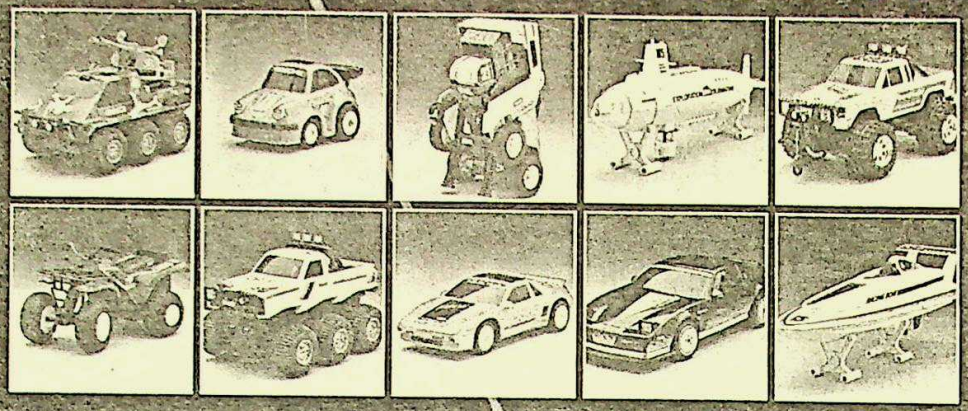

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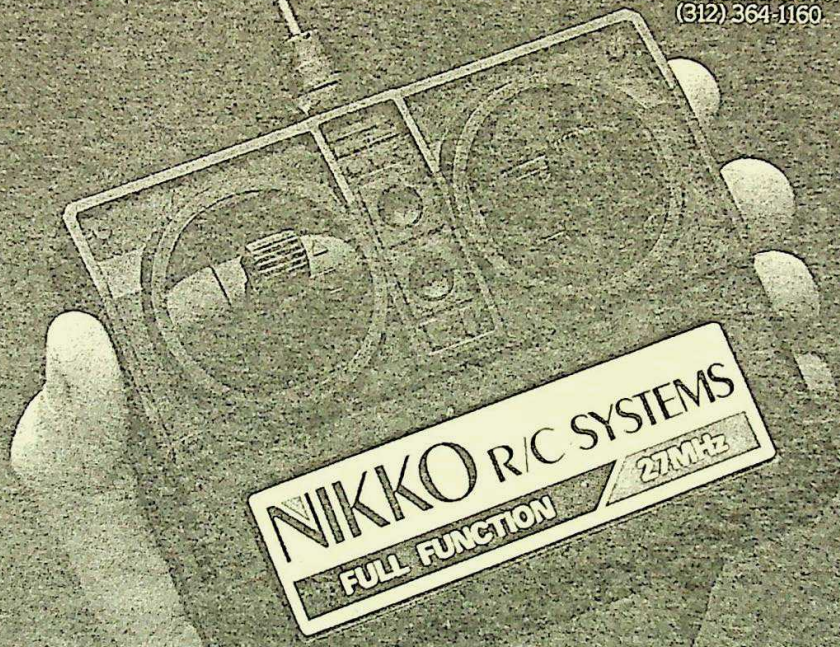

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P. 16

TOYS, HOBBIES & CRAFTS, MAR. 1985

Channel Master's displays are designed to simplify selection by consumers.

from Channel Master debut

SMITHFIELD, N.C. — Channel Master has introduced a line of what it called professional-quality TV/FM, audio, video, phone and CB accessory products.

The accessories are geared specifically to the do-it-yourself consumer market, according to the company.

"The streamlined product mix should permit retailers to make a higher return on profits with fewer total SKUs," said Stan Stedner, marketing manager.

The accessories' blister packages are color coded for easy identification, and feature graphic illustrations and application instructions.

"This new line is creatively coordinated to simplifiy product selection, making it easier for consumers to help themselves," said Stedner.

Most Channel Master audio and video accessories, as well as contact points on phone accessories, are manufactured with 30 microns of gold plating, according to the company.

HOME FURNISHING DAILY, 2/15/88 p. 79

JOYSTICKS BY

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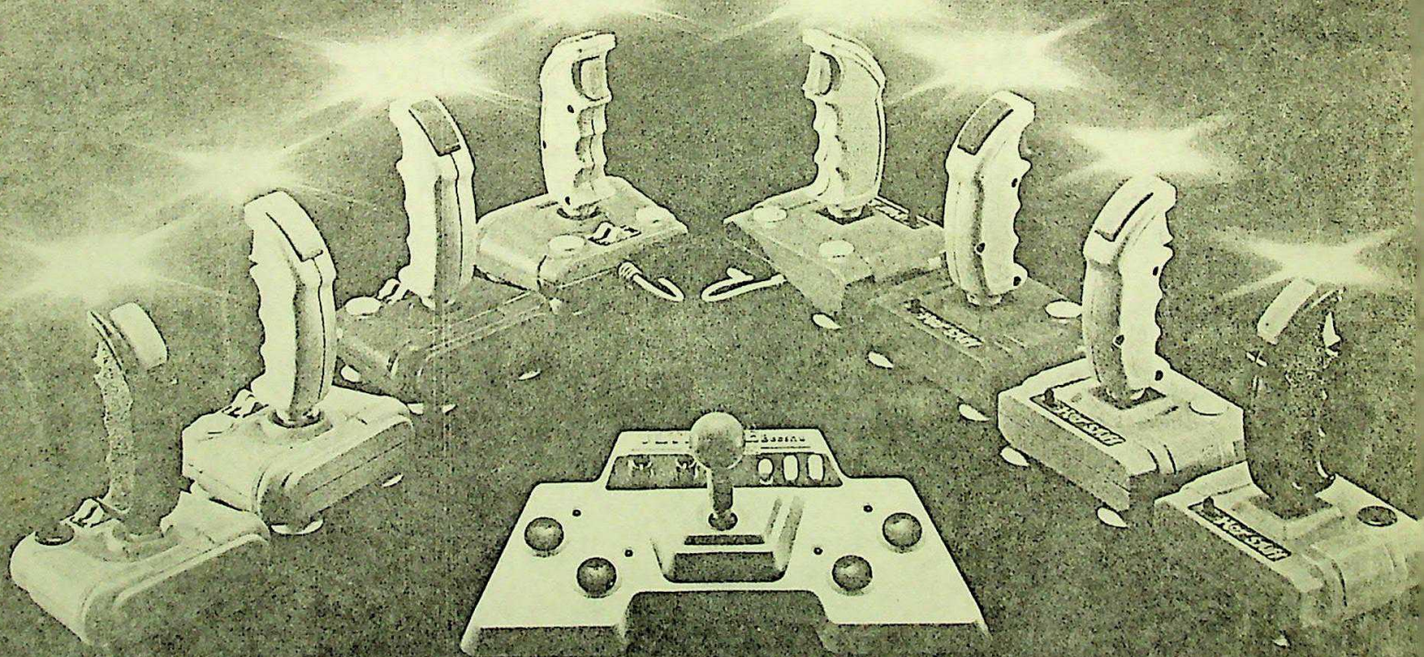

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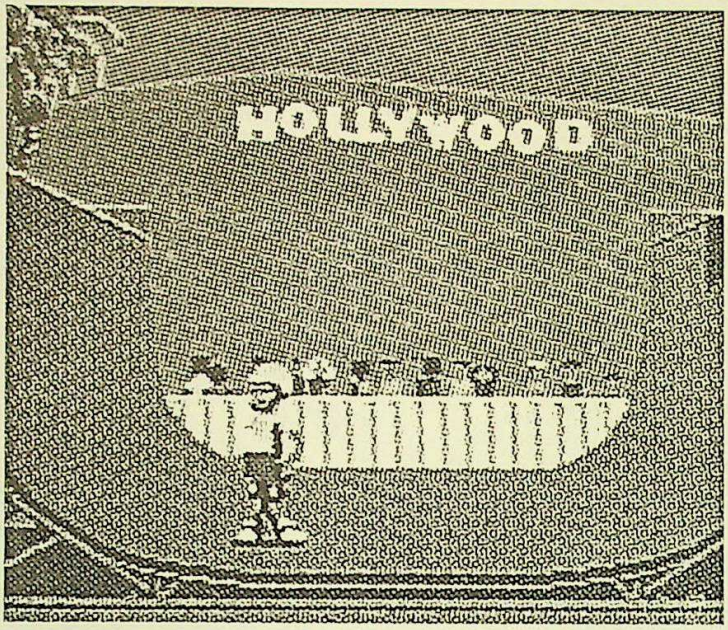
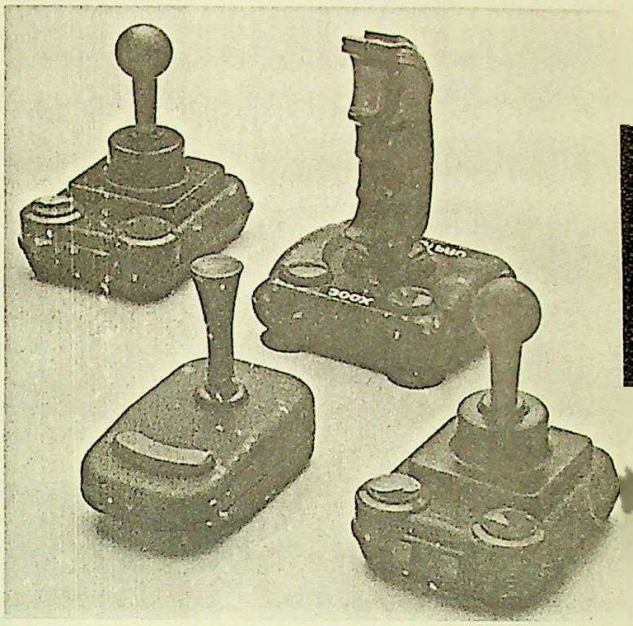


California Games, from Epyx, has one to eight players cruising up and down the California coast competing in events like roller-skating, skateboarding, and BMX bike racing. This "radical" game is compatible with various home computers and video game systems **#205**



Competition Pro Joysticks, from Happ Controls, include Model 100(Model 300X, and Model 500, all for use with Atari and Commodoı home video games/computers, and Model 5000N, for use with th Nintendo Entertainment System **#206**

with the gun. We may even take away some of Atari's space and add more Nintendo," says Brown of Tons O Toys.

"Some people are predicting 20 or 30 percent of their Christmas sales to be video games," says Fried. "I wouldn't be surprised by those numbers, but there may not be enough product to meet the demand."

Big Christmas sellers are expected to include: Double Dragon, Legend of Zelda, Top Gun, Punch Out, Operation Wolf, Super Mario Bros. 2, Zelda II, and Ghostbusters. Several manufacturers, including Nintendo, will also be announcing new titles.

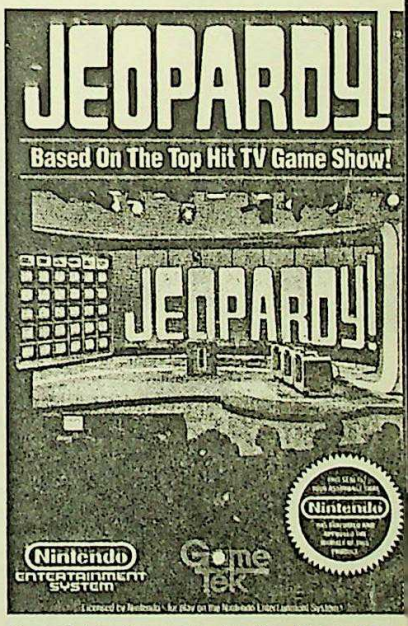
Despite the increasing consumer demand for video games, retailers are still remaining cautious. "We got burned the last time and so we won't be overstocking or ordering huge quantities," says Cassler. "Overall, we're doing very well with the games, but we are being very selective with trying new ones. Certain titles like baseball and Mike Tyson have done very well."

Manufacturers are also being cautious. Consumer demand for Nintendo is high, but according to Chris Garske of Activision, producer of Atari and Nintendo games, "We don't live or die on Nintendo. It is not even 25 percent of our business." But he believes the demand will continue for the games through the winter. "Even with the shortage, the volume will be higher than last Christmas and summer," he says.

The future looks bright for video games over the next two years. "I don't see the market becoming saturated because all the distributors are willing to take back products we don't sell. There will be no glut this year," predicts Fried.

But there is increasing speculation as to how long the revival will last. Many agree that this time around, the quality of the games is much higher. If the chip shortage eases up by spring, as predicted, the industry could remain strong for several years. "The demand is not going to go away," says Garske. "There will always be another new generation of kids." □

For more information on any of the products or companies in this field, please circle #213 on the reader service card in this issue.



GameTek's Jeopardy, for the Nintendo sy tem, is played just like the TV game sho with thousands of questions, great graphic and the show's actual theme music **#207**

(19)日本国特許庁（ＪＰ）　(12) 公開実用新案公報（Ｕ）　(11)実用新案出願公開番号

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(71)出願人　000132471
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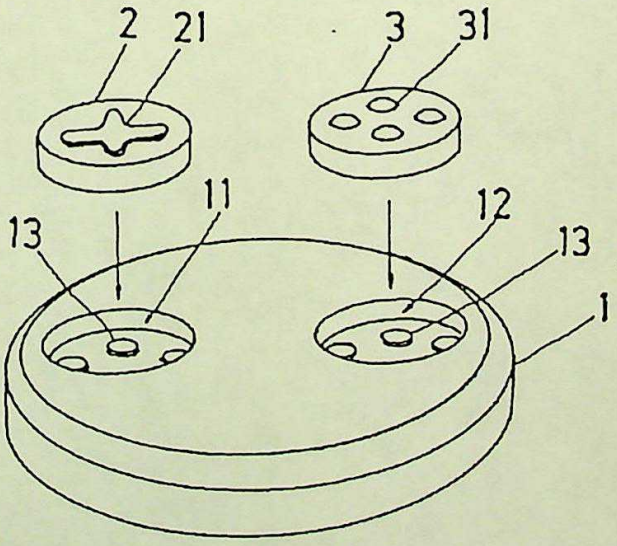
(54)【考案の名称】　コントロールキー装置

(57)【要約】

【目的】　本考案はテレビゲーム装置やポータブル型電子ゲーム装置に用いられるコントロールキー装置に関し、特に該テレビゲーム装置やポータブル型電子ゲーム装置に於ける方向キー用キーパッド又はスイッチボタン用キーパッドを用途別に付け替えて用途に応じて操作しやすくすることのできるコントロールキー装置に関するものである。

【構成】　装置本体に複数のキーパッド嵌着凹部を形成し、該キーパッド嵌着凹部に対して方向キー用キーパッド又はスイッチボタン用キーパッドを着脱自在に構成し、且つ、複数のキーパッド嵌着凹部に対する方向キー用キーパッド又はスイッチボタン用キーパッドの着脱に互換性を持たせるように構成されている。



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(71) Applicant: **SEGA ENTERP LTD**

(72) Inventor: **MURATA KATSUO**

(54) LIQUID CRYSTAL CONTROLLER

(57) Abstract:

PURPOSE: To provide a liquid crystal controller which can make various controls in accordance with a game which is played instead of a predetermined uniformed control.

CONSTITUTION: The liquid crystal controller is provided with a controller body 11 connected to a game machine body, a liquid crystal monitor (liquid crystal image) 13 arranged on an outer surface 11a of the controller body 11 to display operation information sent from the game machine body, and a touch panel 12 which is constituted so as to see the liquid crystal monitor 13 and located in an upper layer of the liquid crystal monitor 13, and provides a control signal to the game machine body based on a pressing operation on a position which is corresponding to the display on the liquid crystal monitor 13.

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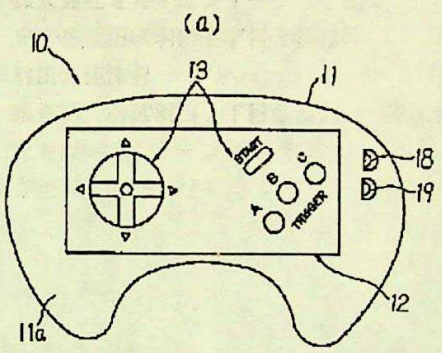
(a)



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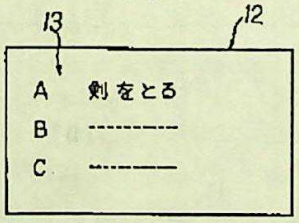

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(54)【考案の名称】　コントロールキー装置

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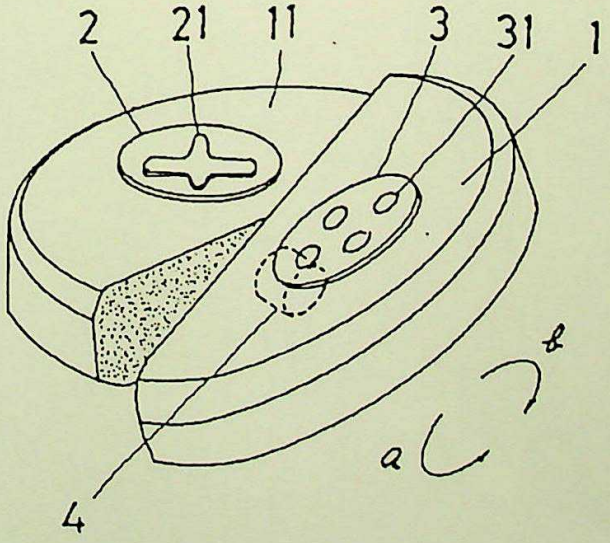
【目的】　本考案はテレビゲーム装置やポータブル型電子ゲーム装置に用いられるコントロールキー装置に関し、特に該テレビゲーム装置やポータブル型電子ゲーム装置に於ける方向キートップとスイッチボタンの組み合わせをゲームの種類に応じて配置変えできるように構成したことを特徴とするコントロールキー装置に関するものである。

【構成】　枢軸によって連結され、相互に回動可能な二個のハウジングからなり、それぞれのハウジングの一面に方向キートップを組み込み、他面にスイッチボタンを組み込んだことを特徴とするコントロールキー装置。



1

【実用新案登録請求の範囲】

【請求項1】枢軸によって連結され、相互に回動可能な二個のハウジングからなり、それぞれのハウジングの一面に方向キートップを組み込み、他面にスイッチボタンを組み込んだことを特徴とするコントロールキー装置。

【図面の簡単な説明】

【図1】本考案コントロールキー装置の斜視図である。

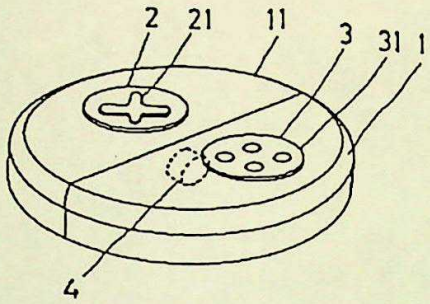
【図2】ハウジングを相互に回動する状態の斜視図である。

2

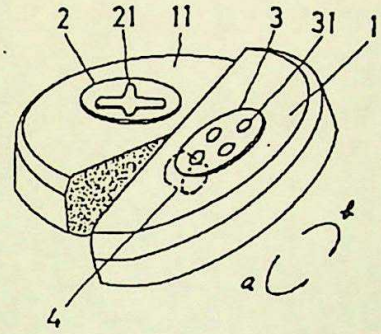
【符号の説明】

1．ハウジング
11．ハウジング
2．方向キー用キーパッド
21．方向キートップ
3．スイッチボタン用キーパッド
31．スイッチボタン
4．枢軸

【図1】



【図2】



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(32)優先日　平６(1994)５月９日

(33)優先権主張国　日本（ＪＰ）

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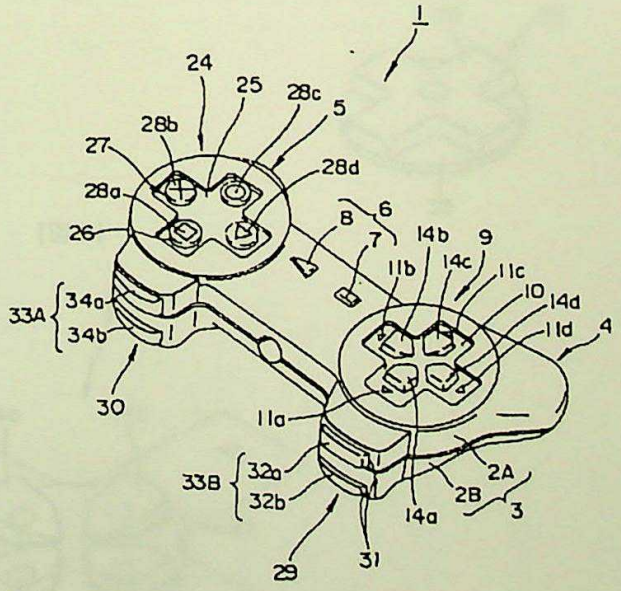
(74)代理人　弁理士　佐々木　功　（外１名）

(54)【発明の名称】　ゲーム機用コントローラ

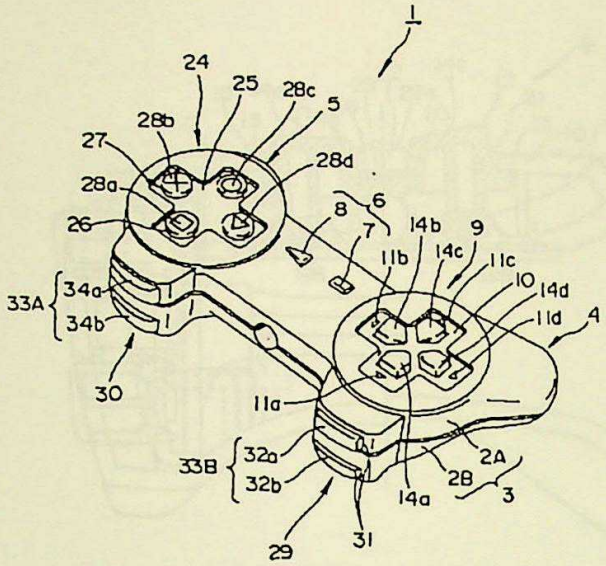
(57)【要約】

【目的】　３次元空間に対応したゲーム機を操作するリモコンを提供する。

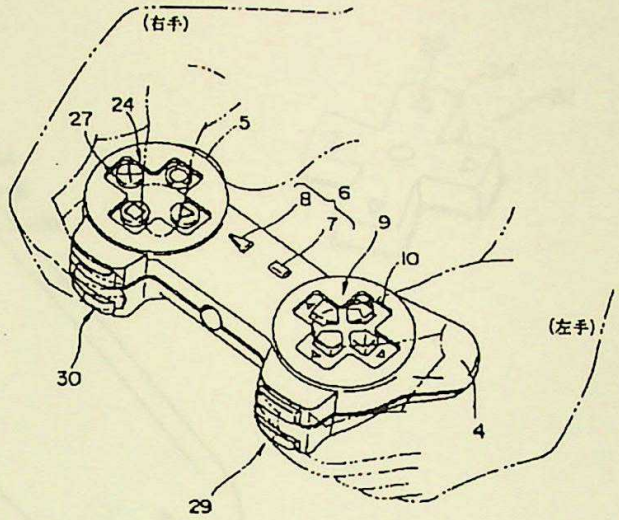
【構成】　指で操作する第１、第２、第３及び第４の操作部と、手掌で支持す角状に突出形成したハンドル部を備えたゲーム機用リモコンで、ハンドル部を手掌で支持することにより、指先が自由な状態となり、その分正確且つ迅速な操作を複数の指先で行って３次元空間に対応したゲーム操作を可能にする。



【図1】



【図2】



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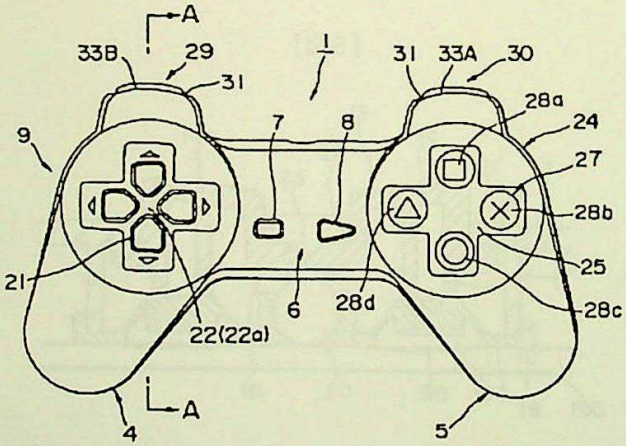
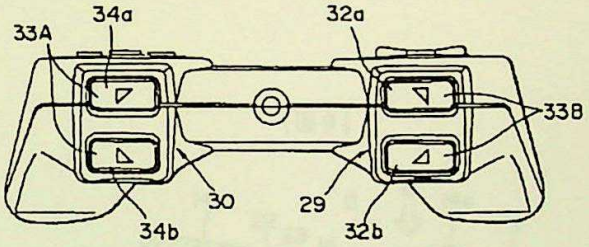


【図4】



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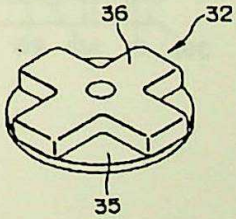

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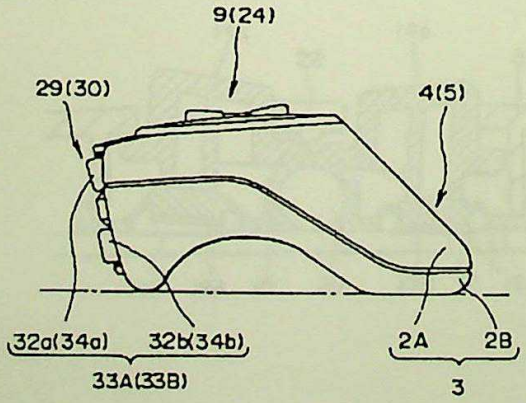

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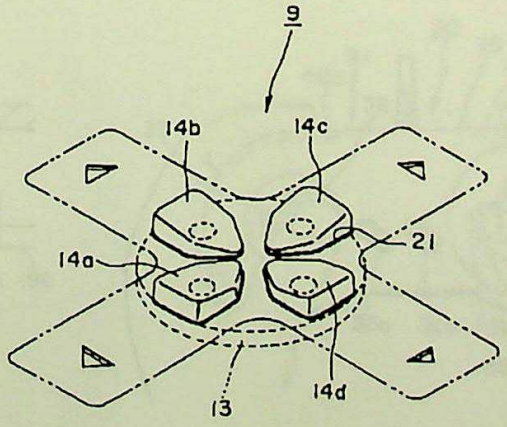

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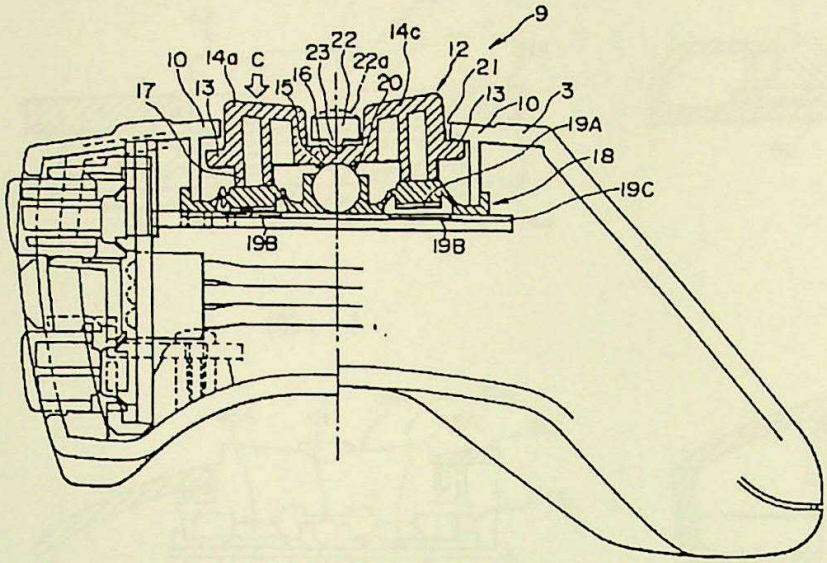

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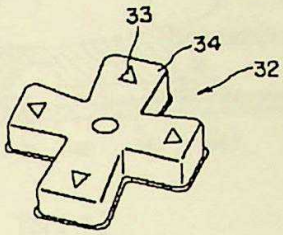

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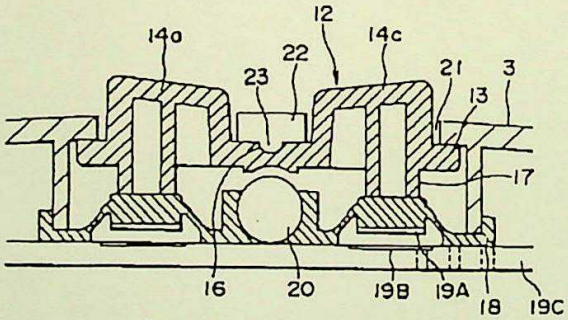

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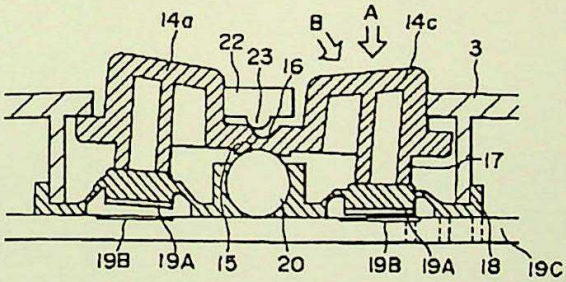

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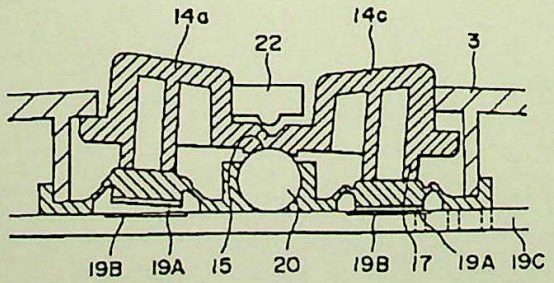

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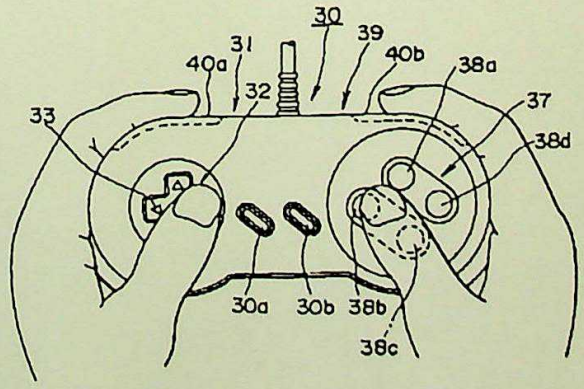
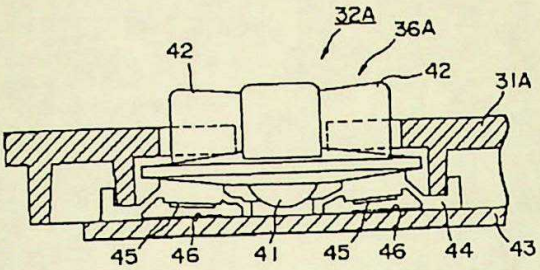


【図１４】



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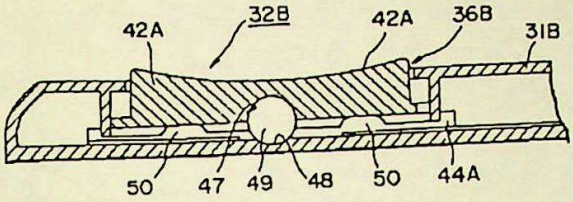
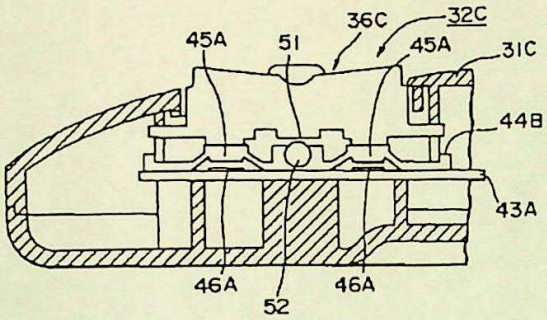
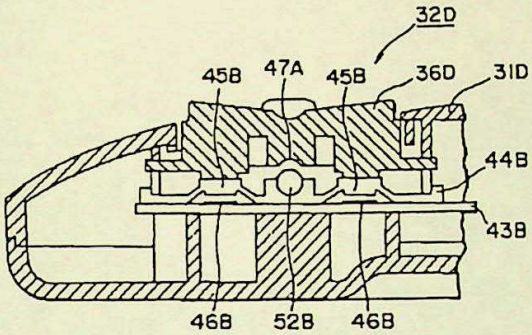


【図１６】



【図１７】



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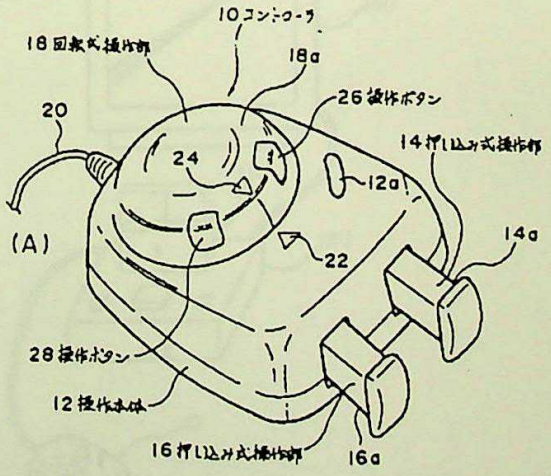
(74)代理人　弁理士　布施　行夫　（外２名）

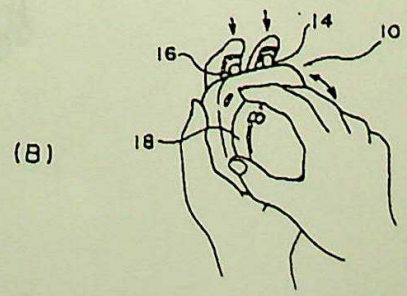
(54)【発明の名称】　家庭用ゲーム機のコントローラ

(57)【要約】

【目的】　複数の無段階操作を同時に行いながら、操作ボタンの操作も容易に行うことができる家庭用ゲーム機のコントローラを提供することにある。

【構成】　一方の手で把持可能な操作本体１２と、この操作本体１２に設けられる押し込み式操作部１４、１６及び回転式操作部１８と、を有し、押し込み式操作部１４、１６は、一方の手のいずれかの指が配置される位置で、付勢手段の付勢力によって所定長さ突出し、付勢力に抗して無段階に押し込んで操作可能に形成され、回転式操作部１８は、他方の手で操作できる位置で操作本体１２と相対的に回転操作可能に形成され、かつ、この他方の手のいずれかの指が配置される位置に操作ボタン２６、２８を有することを特徴とする。





操作部６０にてブレーキ操作を行い、操作ボタン５８によってギアチェンジを行うようになる。なお、操作ボタン５８は、前端部５８ａを押すことでギアが下がり低速となり、後端部５８ｂを押すことでギアが上がり高速となる。

【００４４】次に、図４は、さらに他の変形例を示す斜視図である。同図において、コントローラ７０は、一方の把持操作部７２と、他方の把持操作部７４とが直接回動可能に接続されている。具体的には、例えば、一方の把持操作部７２から回動軸（図示せず）が突出し、この回動軸が他方の把持操作部７４内に挿入され、この把持操作部７４に内蔵された回転式の可変抵抗器（図示せず）などに接続されるようになっている。こうして、図３のコントローラ５０と同様に、回動角度を検出して無段階の量的操作を行えるようになっている。

【００４５】また、一方の把持操作部７２には、親指の配置位置に操作ボタン７６、７８が設けられ、人差し指の配置位置に押し込み式操作部７８が設けられている。さらに、他方の把持操作部７４には、人差し指の配置位置に押し込み式操作部８０が設けられている。

【００４６】なお、コントローラ７０におけるその他の構成及び作用は、図３のコントローラ５０と同様であるので説明を省略する。

【００４７】そして、このコントローラ７０を、ドライビングシミュレータゲームに用いるには、把持操作部７２、７４を回動させてハンドル操作を行い、押し込み式操作部８０にてアクセル操作を行い、押し込み式操作部

７８にてブレーキ操作を行い、操作ボタン７６、７８によってギアチェンジを行うようになる。

【００４８】

【発明の効果】請求項１又は請求項２記載の発明によれば、複数の無段階の量的操作を行いながら、同時に択一的操作をも容易に行うことができるという効果がある。

【図面の簡単な説明】

【図１】実施例に係るコントローラの説明図で、（Ａ）は全体斜視図であり、（Ｂ）は使用状態を示す図である。

【図２】実施例の変形例を示す図で、（Ａ）は全体斜視図であり、（Ｂ）は操作状態を示す図である。

【図３】その他の変形実施例を示す斜視図であり、（Ａ）は上方から見た斜視図、（Ｂ）は下方から見た斜視図である。

【図４】さらに他の変形例を示す斜視図である。

【図５】家庭用ビデオゲーム装置の全体構成を示す図である。

【符号の説明】

１０、３０、５０、７０　コントローラ

１２、３２　操作本体

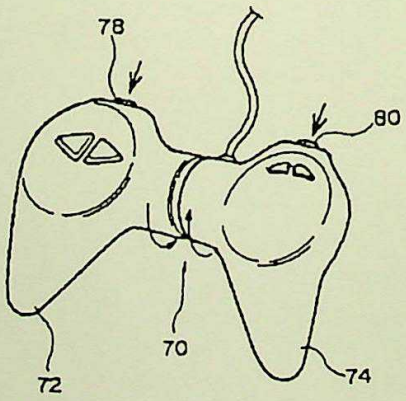
１４、１６、３４、３６、６０、６２、７８、８０　押し込み式操作部

１８、３８　回転式操作部

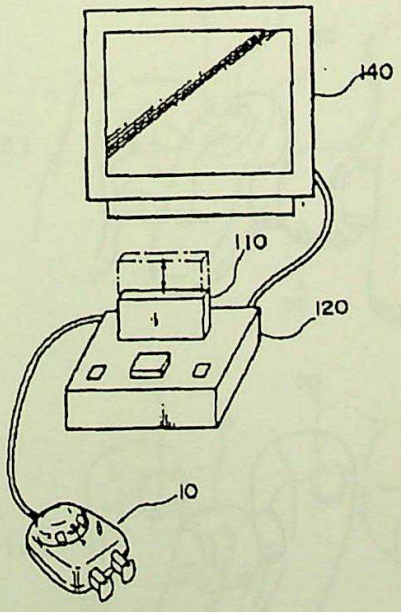
５２、５４、７８、８０　把持操作部

２６、２８、４０、４２、５８、７６、７８　操作ボタン

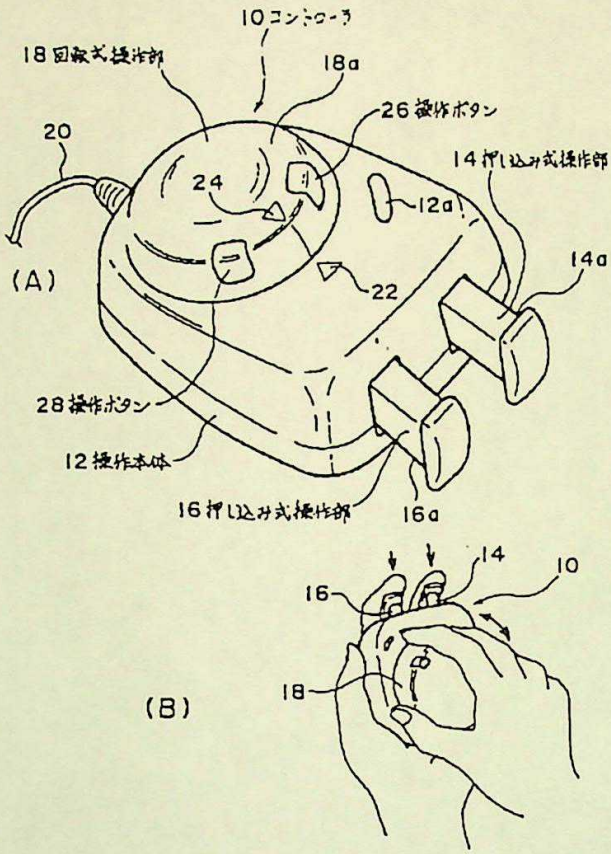
【図４】



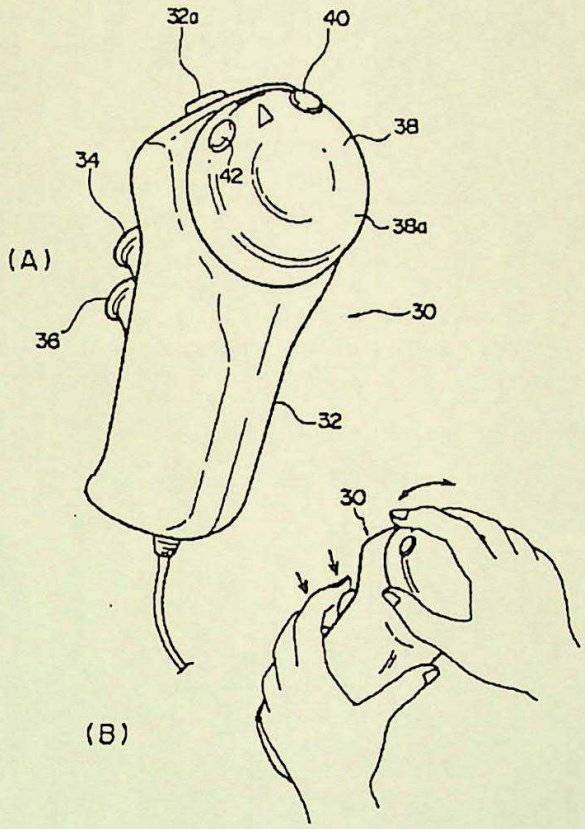
【図５】



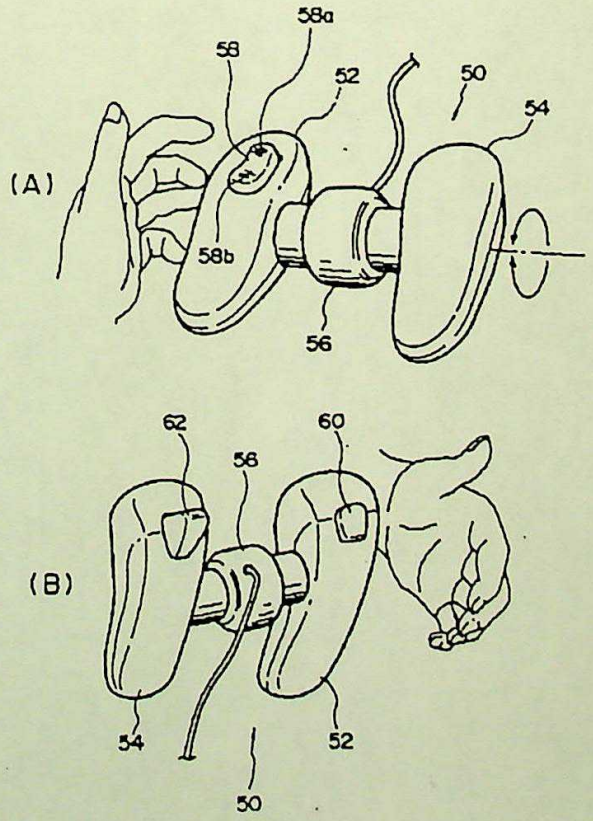
【図1】


10コントローラ
18回転式操作部
18a
26操作ボタン
20
24
14押し込み式操作部
12a
(A)
22
14a
28操作ボタン
12操作本体
16押し込み式操作部
16a
14
10
16
18
(B)

【図2】


32a
40
38
34
42
38a
(A)
36
30
32
30
(B)

【図3】


58a
58
52
50
54
(A)
58b
56
62
60
56
(B)
54
52
50

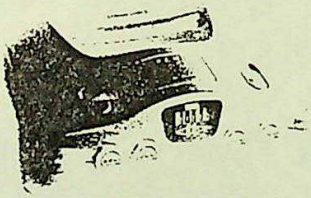
Ultra 64

As Ultra 64 prepares to launch, the world awaits Nintendo's entry into the next generation videogame race

The joypad that Nintendo refused to unveil until the very last minute, and the four-player Ultra 64 hardware itself. Nintendo remains the most powerful force in gaming. The world anxiously awaits its 64-bit launch

As NEXT Generation goes to press, Ultra 64 makes its November debut at the Shoshinkai show in Tokyo. Although at this point, the finer details of Ultra 64's launch plans and specifications remain in a cloud of mystery, what is certain is that the gaming world is awaiting the unveiling of Nintendo's new beast with bated breath.

Quite simply, Nintendo remains the single most important company in the game business. Whether or not the 64-bit processing muscle of Ultra 64 lives up to expectations, or whether it "does a Jaguar" is irrelevant in terms of the interest and impact its launch will initially make on the US market. Nintendo is believed to launch Nintendo 64 (as the machine will be known in its native country) in Japan on March 21. Supposedly, the only major hold-ups are software support and Nintendo's hesitation to unnecessarily cut short what it still sees as a lucrative 16-bit Super NES market. A US launch is rumored for later summer of 1996, or (less likely) simultaneously with the Japanese launch. Either way, Nintendo refused to deny to NEXT Generation that machines were boxed and "ready to go" in its Washington warehouse.



Nintendo faces only one major obstacle going into 1996 (assuming that Ultra 64 actually works OK). That is the choice of storage medium for Ultra [illegible] the longest time, Nintendo has stuck to its original promise that Ultra 64 "will not be a CD-ROM-based machine." And, in the absence of any realistic (or cheap) alternatives (rumors of a custom magnetic disk system or down-loadable games via the Internet remain unlikely and unfeasable, respectively) that has left good ol' fashioned cartridges as the most likely alternative.

Right now, the game industry's reactions to [illegible] similar to the reaction of a bull to a red [illegible] suspicion, aggression — and the [illegible] of far too many ridiculous charges in the [illegible]. Yup, cartridge manufacturing cost anything up to $30 per unit at the height of the [illegible]. Now, CDs cost less than a dollar to manufacture — and (not surprisingly) game publishers are reluctant to return to the days of when you had to bet the entire company every time you manufactured enough cartridges to give yourself a chance of having a hit. Also, game developers have been to some extent spoiled by the freedom that the CD format grants — virtually unlimited intro sequences, CD soundtracks, and the ability to incorporate video footage at will, all will be missed by developers, if not gamers.

Of course, Nintendo may in fact embrace CD-ROM technology later on, or it may have some clever alternative concealed up its sleeve. But right now it's a problem.

What to look for in 96

• The videogame world holds its breath as Nintendo launches (in its own time) Ultra 64 in Japan and then the US • Spectacular games from Nintendo's in-house teams (most notably, Mr. Shigeru Miyamoto) at launch • An ultra competitive launch price of $249, moving to $199 in time for the holiday season. • Trouble persuading the game community to publish games on cartridges • Ultra 64 not delivering the quantum leap in performance over and above PlayStation necessary to eclipse Sony's momentum after a successful US launch in 1995

AH

June

After the excitement of E³ the focus moves back to Japan, where the Sony-vs-Sega battle is more intense than ever. First Sony announces plans for a "new" PlayStation. It's actually the original unit minus Sony's control pad, and it will sell for ¥29,800 (US$280) in time for the end of the year. At the same time the firm announces that sales in Japan have hit 4 million. Sega has immediately dropping the price of the Saturn by 20% to ¥37,800 and claims that its installed base is already up to 1.5 million. It certainly seems as if Saturn is finally gaining momentum, could be switching to Sony and its more consistent software support.

- Back to the US. Goldstar and Panasonic cut the price of their 3DO units to $499.
- Nintendo announces an August launch date for Virtual Boy. It will be priced at $179.95 with Mario's Dream Tennis bundled and 11 other titles available. The handhe industry remains steadfastly behind GameBoy.
- Leading-edge technology firm Lockheed Martin announces a PC-based 3D graphics accelerator, Real 3D, even more powerful than even the biggest arcade boards.

QUOTE OF THE MONTH:

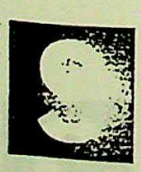
"We can now use the Super NES and Genesis as the doorstops they should have been years ago. We always disliked them. As a gamer, we despised them. Thank God they're gone."
Peter Molyneux, Bullfrog Productions

A1

PlayStation

Manufacturer:	**Sony**
Price:	**$299**
Released:	**September 9**
Origin:	**Japan**
US Sales:	**180,000**

Question: What do you get if you spend $500million developing a games machine?
Answer: The PlayStation



ony, the omnipotent Western consumer electronics brand name, does not do "half way." The PlayStation is unquestionably one of the most powerful collections of electronic gadgetry ever assembled for home use. Five years ago, its processing power, graphic capabilities, and overall techno-prowess would have been impossible to assemble. Today, they make it the one of the most desirable pieces of hardware on the block. Companies are lining up to develop for the machine, sales are exceeding best-case scenarios, and impossible games are becoming possible. The PlayStation is here, and it looks as if it's here to stay.

The PlayStation was released in Japan on December 3, 1994. Despite the Japanese custom of selling hardware without pack-ins, the console was effectively launched with Namco's *Ridge Racer* as its first killer app. One of the world's premiere arcade wizards' best games had been converted for the PlayStation in under six months, and, amazingly, it was an

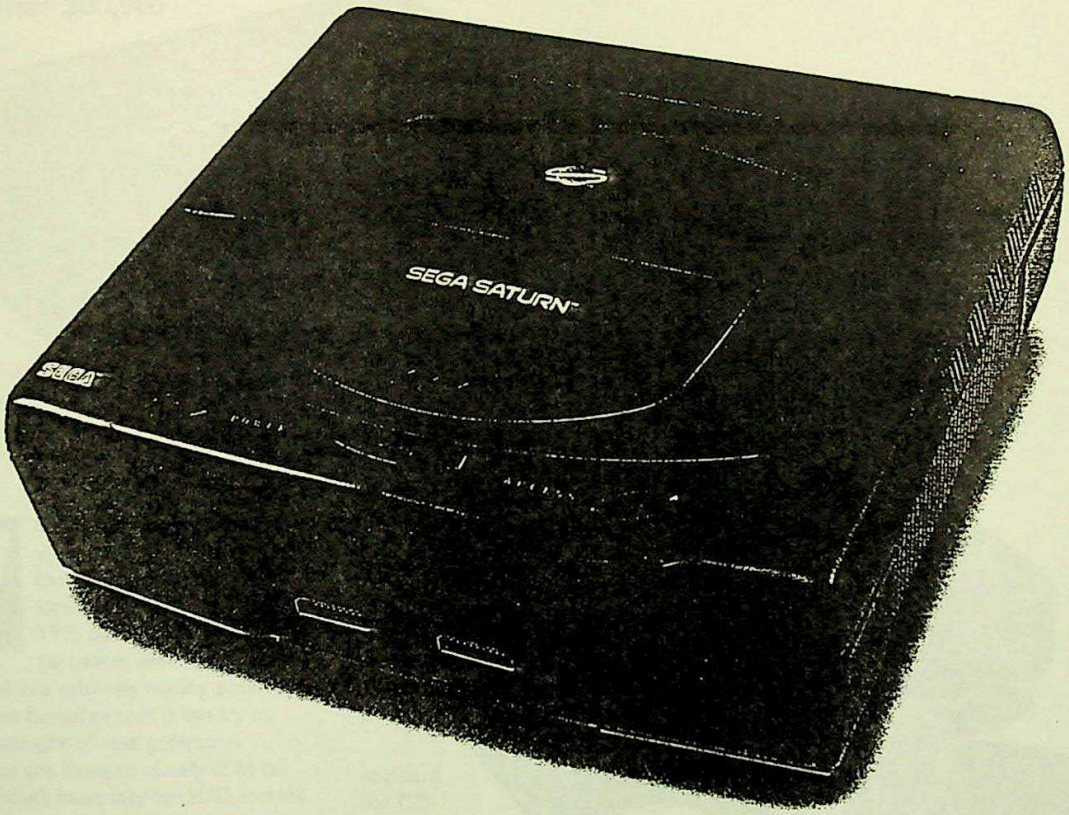
Upon reaching US retail stores on September 9, more than 100,000 units were sold on its first weekend of sale

AJ

Sega Saturn

Manufacturer:	Sega
Price:	$299
Released:	May 11
Origin:	Japan
US Sales:	70,000

Sega rolled out a surprise Saturn launch on May 11. But have slow sales and a lack of third party games wiped out Sega's head-start in the 32-bit race?

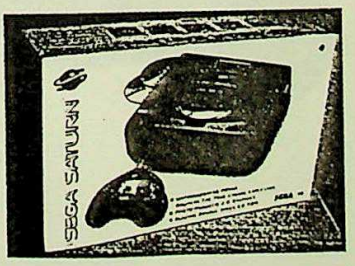


Console wars come and go, and the price of victory is a license not just to print money but to build the presses as well.

The first such videogame war was won by Atari way back in the early 1980s. This was a war fought with hurriedly designed hardware, luck, massive ambition and, unfortunately, poor management decisions. The next war was a much more organized affair, with Nintendo the big 8-bit winner, creating openings for smaller companies like Sega to emulate and improve on the best bits of Nintendo's grand strategy the next time around while fighting for the 16-bit crown.

Now, at the start of the 32-bit generation, the fourth console tussle is upon us and features a unique set of circumstances, with sophisticated hardware, battle-hardened, competitive companies, and an aggressive new entrant in Sony. Also, the $300 price-point is an unfamiliar battleground and it remains to be seen how well this is going to go down with consumers who are already weary of ever-escalating prices in the videogame market.

Early analysis indicated that Sega is in

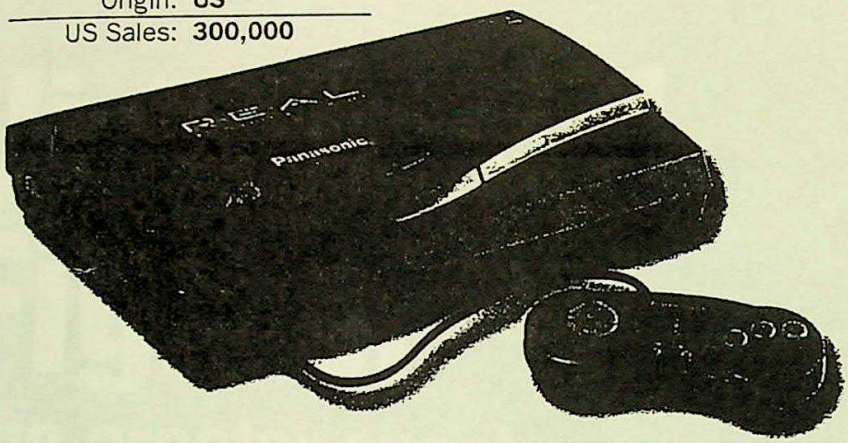


Marketing has always been Sega's strength. A special "Away Team" was created to handle the US launch

3DO

As the first 32-bit games system released, 3DO has had the biggest lead time of all. But can a two year old console compete with the next generation?

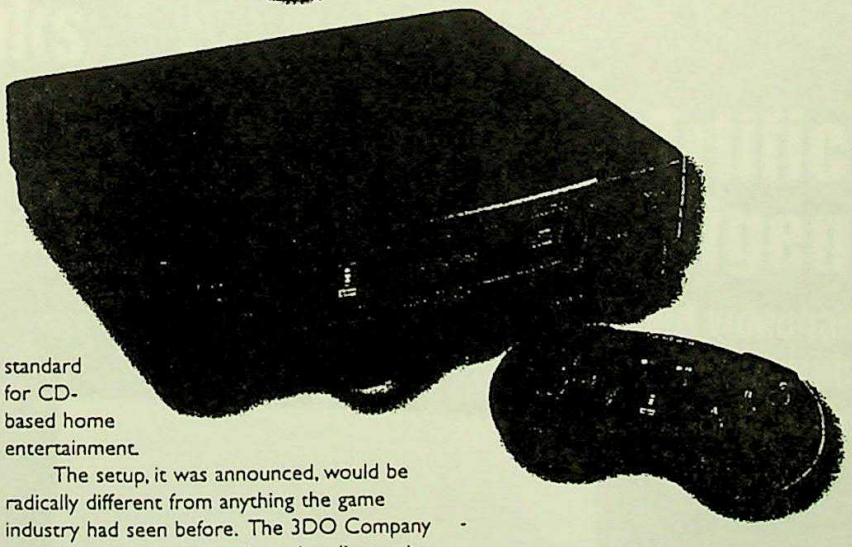
Manufacturer:	Goldstar Panasonic
Price:	$299
Released:	1993
Origin:	US
US Sales:	300,000



With a global installed base of approaching 700,000 units and the exciting prospect of the forthcoming M2 accelerator, 1995 should see 3DO ditch its persistent underachiever tag and find itself in a relatively healthy position. And from this bunkered spot it can try to repel the onslaught of next generation machines that are biting so closely at its tail.

But it hasn't been easy for 3DO, and the ride isn't over yet. If you want to look at a defining moment for the 3DO, one brief incident that encapsulates the turbulent fortunes of Trip Hawkins' progeny, you need travel no further back in time than to the 1993 Summer Consumer Electronics Show.

Hawkins, the man who'd built Electronic Arts into the biggest entertainment software company in the world, sold the 3DO to the industry at the Chicago show. And he sold it hard, displaying the obligatory, almost messianic vision that corporate America has made its trademark. According to Hawkins, 3DO — which was due for an October rollout — was not going to be just another entertainment system; it was going to become the global standard for CD-based home entertainment.



The setup, it was announced, would be radically different from anything the game industry had seen before. The 3DO Company would develop the technology, then license it to third party manufacturers, offering other companies a relatively low-risk opportunity to enter the game hardware market.

The power base for this frontal assault certainly looked impressive enough. The list of backers included some of the largest players in the world consumer electronics and entertainment markets, including AT&T, Time Warner, Matsushita (the company behind Panasonic), and MCA. More than 300

AL

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Sega's Yu Suzuki lifts the veil on Virtua Fighter 3, Daytona 2, and Sega's future in 3D arcade games

Sega Saturn 2

Sega's secret 64-bit 3D cartridge

Artificial Intelligence

"That stupid videogame!" Actually, it's probably smarter than you...

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We name the 75 most powerful people in the game industry

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Spell-bind your heart, then kick your butt. Page 62

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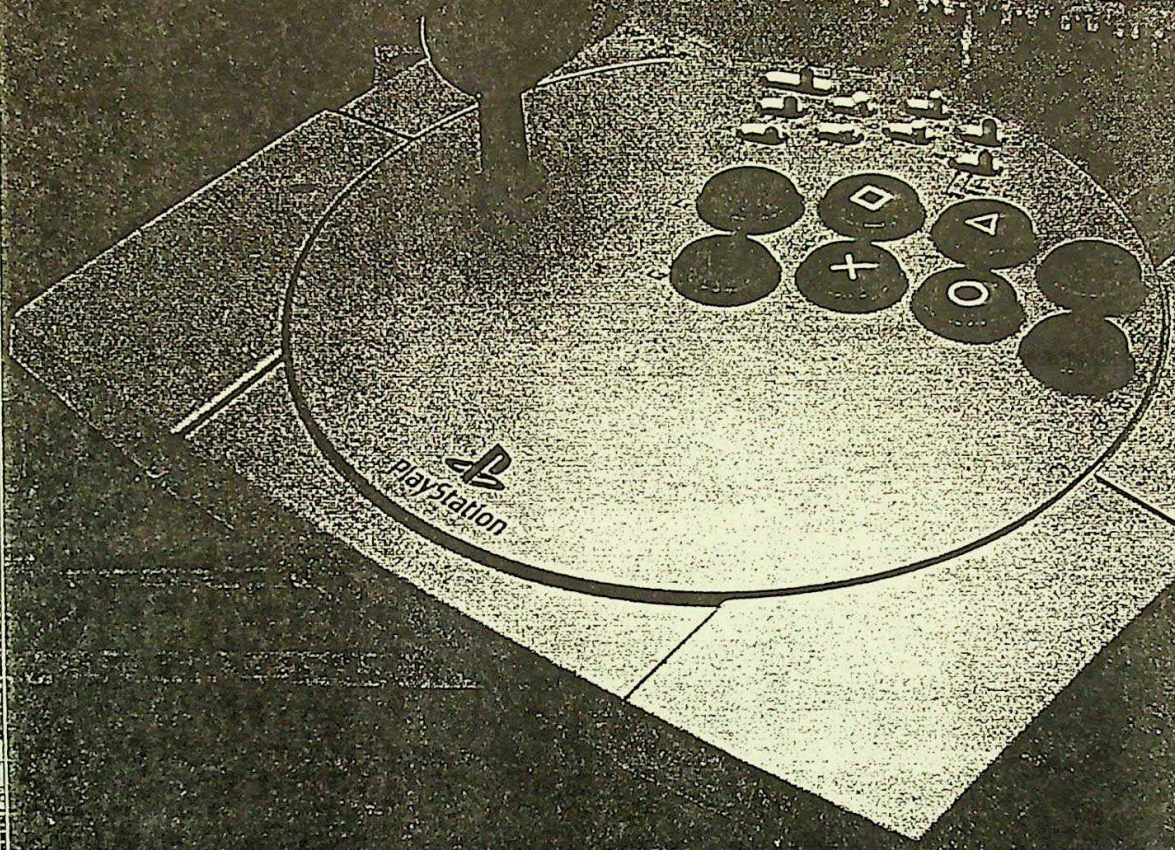

CHOOSE

Weapon I – Specialized Joystick

- Turbo speed feature heightens your ability to punish.
- Auto/Turbo feature designed to maximize firepower.
- Arcade control (microswitch technology) with 8 button layout.
- Rugged steel control stick and base.
- Slow motion feature and extra long cord.

PlayStation™

TO ARENA

Your reputation is on the line. Let's face it — having your head handed to you in a contest with your 12-year old cousin is about as humiliating as getting caught staring lovingly at your shop teacher. Get medieval on 'em! And command the worship you deserve! These Specialized controls give you the power to stomp not only your cousin, but any wannabe foolish enough to #%@! with an Immortal like you!

OUR WEAPONS WISELY

Weapon II – Specialized Control Pad

- 360° control with directional disc.
- Ergonomically designed controller, molded from ABS plastic.
- Turbo switch with 30 shots-per-second firing power, configurable to all 8 action buttons.
- Auto/Turbo delivers infinite stream of intense firepower.
- Slow motion switch and extra long cord.

ASCIIWARE

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Madden NFL '96 aims for primetime on PlayStation, Saturn, and PC. Can the 16-bit sports classic repeat in the 32-bit age?

volume **one**

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In 1991, *John Madden Football* for the Genesis redefined the electronic sports genre and quickly became Sega's pre-*Sonic* killer app. Adults loved *Madden*, and without it, consoles may have remained just kids' toys. *Madden NFL '96* is on page 60

What are the real health hazards involved with computer and video gaming? Page 36

PS ProPad
PS ProPad for Sega Saturn
A Whole New Challenge Starts Here!
Now that you have the latest in hardware technology you're going to need an upgrade controller that can really harness the power of this new machine. STD makes it happen with these hot game controllers for Sega Saturn and Sony PlayStation.

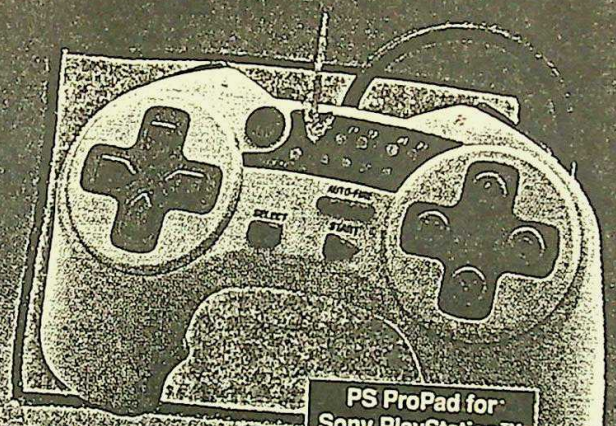
AN

EclipsePad for Sega Saturn™
This great-looking designed control pad sets the standard for comfort and features with eight large fire buttons, independent auto fire, programmable swept fire, an LED panel, slow motion and an extra long cord.

EclipsePad for Sega Saturn™

Eclipse Stick for Sega Saturn™

Eclipse Stick for Sega Saturn™
This powerful stick — with a sturdy metal base, eight full size fire buttons, semi and hands free auto fire, programmable swept fire, slow motion, an LED panel and an extra long cord — brings home all the action of your favorite arcade hits.



PS ProPad for Sony PlayStation™

PS Arcade for Sony PlayStation™

PS Arcade for Sony PlayStation™
Now you can truly take advantage of those cool 3-D fighting games! The PS Arcade packs a serious punch with eight giant fire buttons, a metal base and joystick shaft, four speeds of rapid and hands free auto-fire, three speeds of slow motion, LED indicators, and an extra long cord.

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Sega ports Saturn games to the PC

NVidia exclusively secures Saturn games for its Pentium PC multimedia accelerator

In an exclusive licensing agreement, Sega of America has allowed its Saturn line-up of games to be developed for Pentium PCs equipped with multimedia accelerators based on NVidia's technology. NVidia is a privately-owned, Sunnyvale, CA company, and the developer of the NV1 single-chip multimedia accelerator.

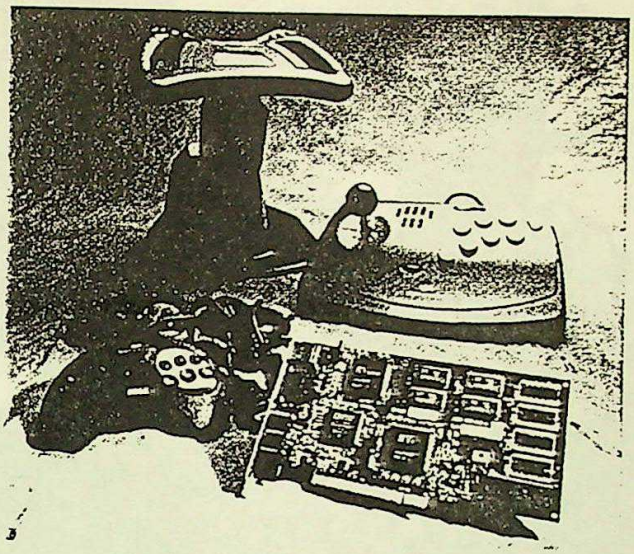
The NV1 chip forms the heart of Diamond Multimedia's VLB Diamond Edge 3D accelerator card ($299 SRP) as well as future products from a number of other currently undisclosed manufacturers. The Diamond Edge 3D is also available in PCI format, based on the STG2000 media accelerator chip from SGS Thompson.

"We think PC owners will be as excited and engrossed by playing our games on the PC in their home offices as our Sega Saturn customers are with the big screen, high-end audio experience in their family rooms," said Sega of America's President Tom Kalinske. Which games will be ported to the PC, however, has yet to be revealed. As well as Sega's Saturn software, Interplay's *Descent*, Domark's *Absolute Zero*, and Papyrus's *NASCAR Racing* kicks off Diamond Edge 3D's software line-up, with more dedicated games promised from other leading developers.

Sega has to view this agreement as a way to yield extra revenues from its software because it lacks the ability of third party game developers to make money from porting its software across all home platforms: the company sees the high-end, $2,000-plus PC game audience as a market that won't conflict with its plans for Saturn.

Not simply a graphics accelerator, The NVidia chip is a true multimedia accelerator, facilitating enhanced 3D Graphics, 2D Windows acceleration, wavetable audio and video acceleration, providing digital gameport and video acceleration. NVidia claims that its chip achieves a peak rendering performance of 100 million pixels per second.

With the PC multimedia and graphics accelerator board market heating up fast, you should expect the complete guide to powering up your PC in a future issue.



The Diamond Edge series of multimedia accelerator cards from Diamond features the NV1 chip

"We think PC owners will be as excited by playing our games on the PC in their home offices as our Sega Saturn customers are in their family rooms"

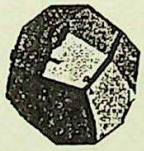
Tom Kalinske, Sega

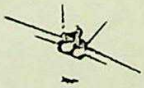
Sega Saturn Adapter

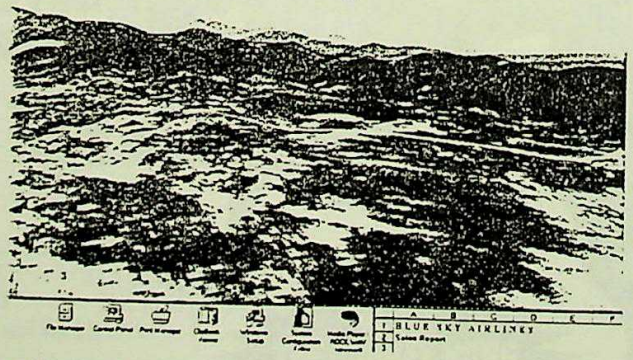
Owners of imported Sega Saturns no longer have to worry about the lack of compatibility between different Saturns from different parts of the world. Simply plug in the unofficial Universal Adapter from Datel into Saturn's cartridge slot and switch on the console.

The Universal Adapter enables any Saturn CD to play on any Saturn, from any country. Of course, with the cartridge slot taken up you will have to find another way to save your game data. US consumers can purchase the Universal Adapter through Tomino Inc. Call them on (313) 329 3755.

Tell them NEXT Generation sent ya.







At the heart of NVidia's NV1 chip's power is its proprietary curve-based polygon rendering technology. The two spheres shown (top) are actually made with the same number of polygons — the one on the right uses NVidia's chip. This frees up processing power for better games (above)

AO

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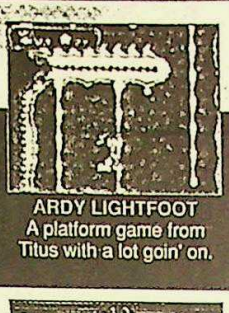
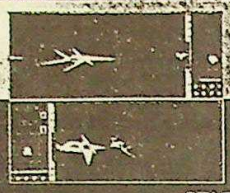
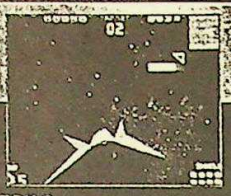


ARDY LIGHTFOOT
A platform game from Titus with a lot goin' on.

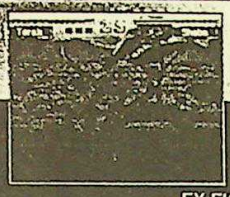
THE BRAINIES
The Brainies will strain your brain.

SINK OR SWIM
A *Lemmings*-type strategy game where you've got to save everyone.





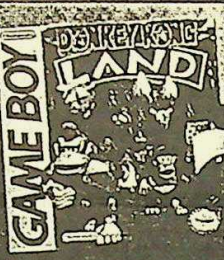
STAR FOX 2
The sequel to *Star Fox*. Finally! If you liked the first game, you'll love this one. Look at that crazy FX chip go! A great shooter, of course.

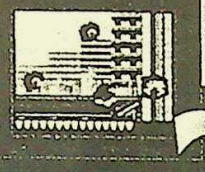


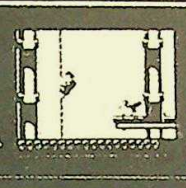
FX FIGHTER
It's not quite *Virtua Fighter*, now is it? But it'll do. If all you've got is a Super Nintendo, you're going to want this game in your collection.

COMANCHE
You fly around in the desert and shoot at whatever comes near you. A realistic sim/shooter that will put a twitch in your knickers.

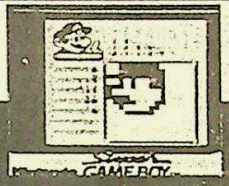
GAME BOY







DONKEY KONG LAND
The greatest Game Boy game to come out in a long time. You'll spend hours with it, and you'll love every minute of it. Rendered art on the Game Boy? It's true!



MARIO'S PICROSS
Mario shakes it up with a little bit of Picross.

KIRBY'S DREAM LAND 2
Kirby goes back to Dream Land. What did you think it was about?

DIGITAL PICTURES SHAKE-UP

DIGITAL PICTURES HAD A MAJOR PRESENCE AT CES DUE TO ITS ASSOCIATION WITH ACCLAIM. OP COMPANY FOUNDER TOM ZITO IS A SURPRISINGLY FRIENDLY, DOWN-TO-EARTH GUY WHO WAS REALLY NICE AND SPENT SOME QUALITY TIME TALKING TO JIM LOFTUS AT THE ACCLAIM PARTY. WHILE SOME MAY NOT BE IMPRESSED BY THE COMPANY'S TRADEMARK FMV GAMES, ZITO'S DANCING ABILITY IS ANOTHER MATTER ALTOGETHER. BETTY AND I HAD THE HONOR OF SEEING HIM DO THE CABBAGE PATCH IN THE DISCO ROOM OF LAS VEGAS' SHARK CLUB. GET DOWN WITH YO' BAD SELF, TOM!

PLAYSTATION, YEAH, YEAH!

I WAS ONE OF THE LUCKY FEW INVITED TO A BEHIND-THE-SCENES LOOK AT THE SONY PLAYSTATION. THE BIG CHEESES DID NOT FORMALLY ANNOUNCE ANYTHING, BUT YOU'D BE SURPRISED HOW MUCH A SMILE CAN SAY. THE SONY PLAYSTATION WILL BE AVAILABLE AT TOYS R' US AND RETAIL FOR, "...BETWEEN $300 AND $400." MORE THAN 25 GAMES WILL BE AVAILABLE AT LAUNCH WITH THE INCREDIBLE 3-D FIGHTING GAME *TOSHINDEN* AND THE NAUSEA-INDUCING *RIDGE RACER*. IT'S THAT FAST!

SEGA BOOTH: THE ALMIGHTY

THE COOLEST THING ABOUT THE SEGA BOOTH WAS THAT IT WAS ON THE DL; ONLY PRESS AND CERTAIN OTHER FAMOUS PEOPLE COULD GET IN. THAT'S RIGHT, WE WERE SPECIAL AND WE KNEW IT. OUTSIDE WAS A LADY WEARING SOME FLY THREADS...NICE BIG, BLACK COLLARS...AND ON THE INSIDE WAS A GAMER'S PARADISE. SET UP FOR OUR PERUSAL WERE A COUPLE OF *VIRTUA FIGHTER 2* MACHINES, A STRING OF *DAYTONA USA* RACERS AND, IN THE BACK, A SEGA SATURN. THE PLACE WAS HOT, SMALL, CROWDED AND NOISY...THE PERFECT ANTITHESIS TO THE STERILE, SPRAWLING ENVIRONMENT THAT COMPRISED MOST OF CES. NIKOS CHEWED THE FAT WITH NICK JONES OF SHINY ENTERTAINMENT ABOUT THE AFRO CODES IN THE SEGA CD VERSION OF *EARTHWORM JIM*, THEN GOT A RESOUNDING BUTT-KICKING AT THE WHEELS OF *DAYTONA* FROM HIM. HE IS DEFINITELY THE MARIO ANDRETTI OF THE SHINY STAFF, COUNTER-STEERING AND CHASING THE LADIES WITH PANACHE. WE SAW MIKE DIETZ AND STEVE CROW FROM SHINY AS WELL; MIKE REPORTED THAT HE'D FINALLY EATEN AT MICKEY D'S. SEGA DIRECTOR OF COMMUNICATIONS RICHARD [illegible] WAS SUAVE AS USUAL, AND KNOWS HOW TO TREAT [illegible] RIGHT; [illegible] NIGHT TO TAKE A COUPLE OF POINTERS. FINAL [illegible] GO TO SEGA FOR HAVING WATER AND SOFT DRINKS.

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セット内容

セガマルチコントローラー	1個
取扱説明書	1枚

SEGASATURN™

1996

セガマルチコントローラー

HSS-0137

Analog controller exclusively for use with the SEGASATURN.
Excellent for driving and shooting games.
Use the Mode Switch to change to
and from SEGASATURN Control Pad functions.

- セガサターン専用アナログコントローラー
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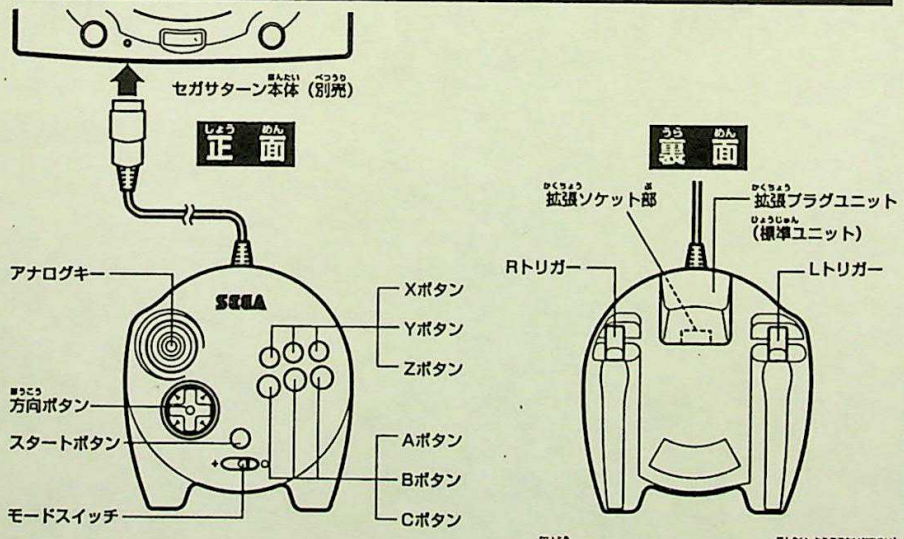
SEGASATURN™

セガマルチコントローラー

セガサターン本体のコントロール端子に接続してください。操作方法は、ソフトによって異なります。くわしくは、各ソフトの取扱説明書をご覧ください。

アナログキーは、セガマルチコントローラー対応ソフトで使用できます。



セット内容：セガマルチコントローラー本体／取扱説明書

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フリーダイヤル 0120-012235
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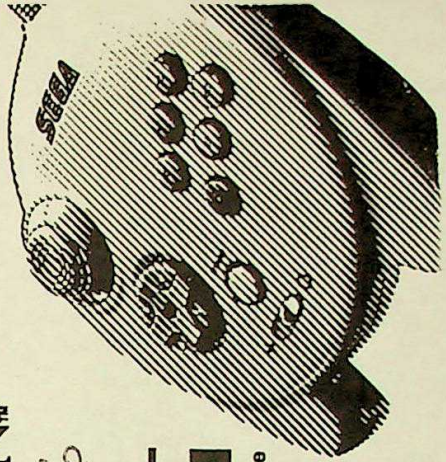

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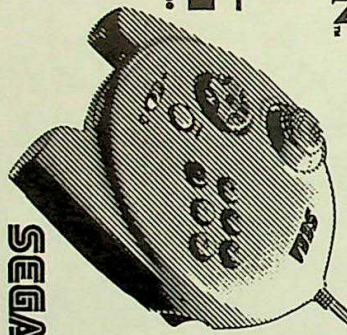

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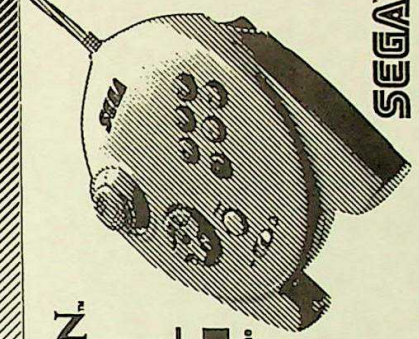

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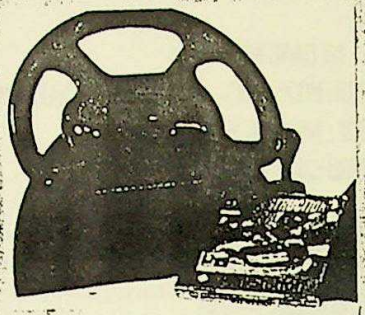
SEGA™

Say you've got a set budget put aside for a Christmas present. How would we recommend you to spend it? Wonder no more, but look at our wish list below...



£75

£50 *FINAL FANTASY VII* AND A MEMORY CARD

With so many secrets to be found in this incredible, vast fantasy game, you're going to need a new memory card. How come? Because you won't want to write over any old saves until you're sure you've done things perfectly since you made them. Besides which, there's no other game that requires such a huge investment of time, so you'll want to be able to keep your saves absolutely safe.

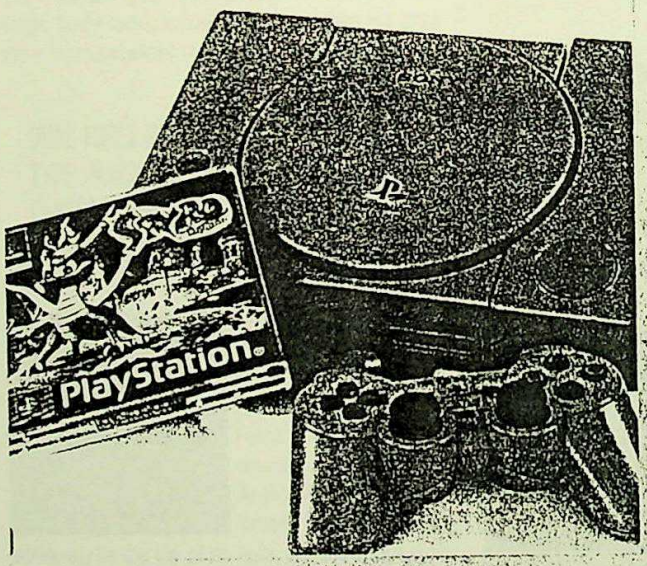
£120

£75 *DESTRUCTION DERBY 2* AND AN OFFICIAL STEERING WHEEL

A dynamite combination sufficient to keep any budding boy racer in a grinning, dribbling state resembling heavy sedation. Which is everything you could ask for at Christmas, of course. *DD2* is the ideal companion to a steering wheel as every overly-exaggerated wrench of the wheel results in a fabulous, ear-splitting, eye-tearing explosion.

£100 *TOMB RAIDER 3* AND *TEKKEN 3*

Who said good things don't get better? In their third incarnations these ground-breaking games are still setting the pace that others must try and follow. Anyone lucky enough to get both of them in their stocking on Christmas morning will have been very blessed by old Santa Claus. Definitely a combo that punches its weight.



£120 A PLAYSTATION AND *TOMB RAIDER*

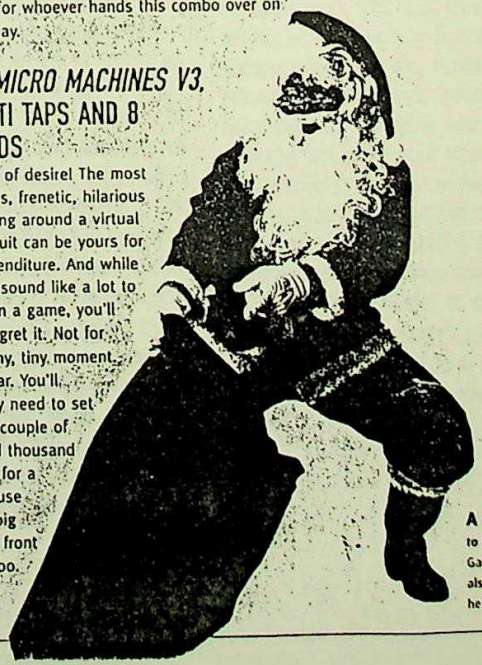
Got any games-cynical friends? You know the kind. The sort who say; "I'd rather watch telly". Well, this is the perfect combination to introduce even the most antipathetic character to the glory of PlayStation ownership. Even now, two years after her debut, Lara can wow anybody with her grace, charm and guns.

£150 A PLAYSTATION AND *SPYRO THE DRAGON*

A lure for games virgins, this is the perfect gift set for any youngsters or reluctant women you know. Not only is *Spyro* the character cute and instantly adorable, *Spyro* the game has top-notch gameplay, so there can be no accusations of a patronising attitude for whoever hands this combo over on the big day.

£200 *MICRO MACHINES V3*, 2 MULTI TAPS AND 8 JOYPADS

Jesu, joy of desire! The most ridiculous, frenetic, hilarious scrambling around a virtual race circuit can be yours for this expenditure. And while it might sound like a lot to spend on a game, you'll never regret it. Not for one teeny, tiny moment. We swear. You'll probably need to set aside a couple of hundred thousand pounds for a new house with a big enough front room, too.



A special thank you to Electronics Boutique and Games Exchange in Bath and also V-games in Bristol for the help in this feature

VISUAL STIMULATION REVIEWS 1

CANDY FOR THE EYES AS WELL AS THE MIND

ULTRARACER
PLATFORM: PLAYSTATION / NINTENDO 64
TYPE: RACING CONTROLLER
COMPANY: INTERACT

The Ultra Racer by Interact is a handheld controller with a bottom mounted finger trigger (for throttle and brake) and a finger held wheel (almost like the old Atari 2600 paddles, but with a smaller radius and centering spring), approximately 2 inches in diameter to steer with. The wheel is ringed in spongy tape to allow a bit of comfortable give when you grip it, and the buttons are programmable, in case you need to juggle things around a bit. Control is excellent, and I've found myself using the UltraRacer for almost all of my racing games, both on the PSX and N64, though I have noticed a bit of difficulty navigating in game menus with it. If you are a racing fan looking for an alternative to the large, bulky racing wheels out there, then the Ultra racer is an excellent choice. (Shilo M.!)

DUAL FORCE RACING WHEEL
TYPE : RACING WHEEL
PLATFORM : PLAYSTATION
MANUFACTURER : MAD CATZ

Mad Catz has come through with quite the desktop wheel and pedal set , in the Dual Force, and it sister wheel for the N64, the Analog / Digital Steering Wheel. The Dual Force is definitely at the top of its field, boasting both solid construction and firm resistance. Unfortunately, the sensitivity is not adjustable, and it is not well suited for lap use. The shock feature, which is battery operated, is a bit of a let down, feeling more like a pager vibration most of the time, no matter which strength it is set to. Even with these minor problems, the Mad catz wheels are definitely at the top of their field, and an excellent purchase for any racing fan. (Shilo M.)

MAKOPAD 64
TYPE : CONTROL PAD
PLATFORM : NINTENDO 64
MANUFACTURER : INTERACT

Interact's MakoPad 64 is, despite it faults, possibly the best option out there for anyone who is looking for something other than Nintendo's multiple hand positioned, awkward monster. The analog stick is placed right next to the digital pad, and the C buttons are enlarged and placed in line with the A & B, thus making a convenient, arcade styled 6 button layout. The only faults that i have found with the Mako are the fact that the analog stick offers a bit too little resistance (for me) and the R,L and Z buttons feel like they could be seated tighter, thus creating less of a flimsy feeling. Overall, the MakoPad 64 is a must buy for all N64 owners. (Shilo M.)

TOMB RAIDER 3: THE ADVENTURES OF LARA CROFT
PLATFORM: PLAYSTATION
GENRE: ACTION / ADVENTURE
DEVELOPER: CORE DESIGN LTD.
PUBLISHER: EIDOS

I have never understood how the gaming industry, which is trying as hard as it can to separate itself from the image of slobbering 13 year olds who want nothing more than to see blood, big guns and big breasts has so enthusiastically embraced the "sexy' (?) Lara Croft as it's icon. This makes a ridiculous mockery of all of the legitimacy and maturity that the industry has been trying to show that it has. That said, The Adventures of Lara Croft is the third installment in the ridiculously successful Tomb Raider series, given to us by British Core Design Limited. This time around, Core has managed to send out the largest and most refined Tomb Raider yet. Lara has been supplied with a large variety of new moves, which add quite a bit to the variety of gameplay. She has also been given a variety of new vehicles to play with, including and ATV and a kayak. Control is as precise as ever, especially with analog support now included. The lush environmental textures have returned, and to me, these are the games biggest fault. At times, the textures, which creep over everything in sight, tend to obscure the angles and planes of the pseudo 3D environment of the TV, making it hard to tell which direction a surface actually goes in, which in turn makes it hard to tell if you can actually jump onto it, grasp it, etc. If you've enjoyed the first 2 Tomb Raider games, then #3 is right up your alley. If you're not familiar with the series, then pick it up and give it a spin, it definitely the peak of it genre so far, and years ahead of its scores of imitators. (Shilo M.)

WIPEOUT 64
PLATFORM: NINTENDO 64
GENRE: RACINGDEVELOPER: PSYGNOSIS
PUBLISHER: MIDWAY

Psygnosis has finally managed to push it way onto the N64, and with it most successful franchise so far. Many gamers will remember Wipeout XL for its great Techno (Fluke, and Propellerheads in this installment), brilliant design by Designers Republic, amazing graphics, and blazing fast speeds. The basic idea is multi player hover racing, across neon lit tracks, with a variety of weapons to harass your opponents with. This time through, the ante has been upped, taking full advantage of the N64s four controller ports by allowing four player split screen racing. The hovercraft control is as good as ever, but stakes a bit of getting used to, due to the odd physics involved. The combination of analog stick and air brakes, however make controlling your vehicle an amazing task, once you get used to it. Wipeout 64 is certainly no second hand port, and is a piece that definitely deserves to be in your collection, it certain' made me remember how much I love the serie (Shilo M.)

THE CATZ ARE OUT IN FULL FORCE

MAD CATZ. THE ONLY FORCE FEEL RACING WHEEL ENDORSED BY MARIO ANDRETTI.

"#1 STEERING WHEEL FOR PLAYSTATION."

Mario Andretti, racing legend

Get behind the wheel of the most realistic driving experience outside of Indy. Just ask Mario Andretti. Feel every bump, every turn with built-in force vibration for both PSX and N64.

Mad Catz Dual Force Racing Wheel for PlayStation™ features built-in Dual Force™ vibration, hand-stitched simulated leather grip, one digital and two analog modes, 270 degree wheel turning radius, plus stick and foot pedals. Fully supports Gran Turismo.™

The Mad Catz Wheel for Nintendo® 64 features built-in Force Pack™ rumble, 270 degree wheel turning radius, stick and foot pedals.

Feel the force behind Mad Catz. All other wheels are mere toys.

Team Mad Catz

by any means necessary

www.madcatz.com

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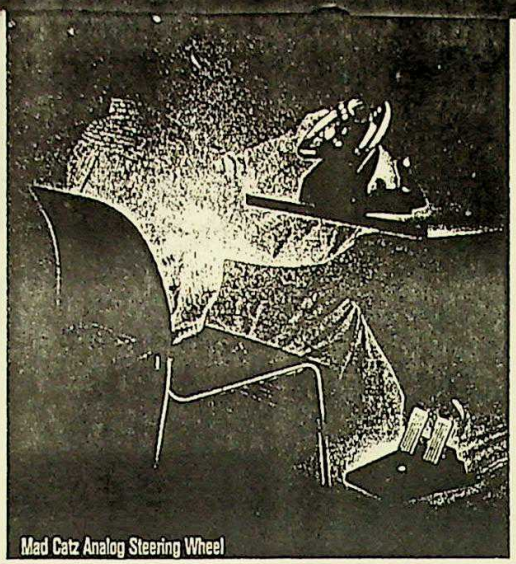

Mad Catz Analog Steering Wheel

pedal unit slides away on occasion when you alternate between the gas and brake pedals. You'll need to use your left foot to stabilize the pedal platform while alternating between pedals. This helps, but not much. Driving with this wheel, and trying to get the pedals to sit still, is like performing a balancing act between your feet and hands.

The ThrustMaster pedals also project upward too vertically, which forces you to angle your foot uncomfortably toward your shin — a position that within minutes produces an ache. The poor pedal design is a shame; the NASCAR Pro's super steering wheel deserves better.

Fifth Place

Mad Catz Analog Steering Wheel ($60)

The pedals on the Mad Catz are almost identical to the Interact V.3's, which is to say they're placed close together. It's easy to rub your feet together when using them.

One tester liked the steering wheel because it wasn't as twitchy as some of the others, and it turned with just the right amount of resistance. Another tester, however, wasn't convinced: "This wheel is not as sensitive as the CH Products EXL500's." The wheel is, however, made of cheap-feeling plastic that no tester could warm up to.

The biggest problem with the Mad Catz wheel is it slides around on the desktop when [illegible] ficiently. We had to push downward on the wheel to regain the slightest sense of control, which greatly reduced track times. A good set of clamps is needed.

Fifth Place
Mad Catz Analog Steering Wheel ($60)

Highs: Smooth, nicely sprung steering and a nice price.

Lows: The entire unit slides on the table.

The Verdict: This good all-around performer needs some clamps.

Fourth Place

Virtual Vehicle VV.JD ($1295)

Around the office, the Virtual Vehicle was the most popular sim for one reason: the race seat and its inherently realistic driving position. The seat is adjustable forward and backward, and the steering wheel is small and feels good in your hands. A dashboard in front of the wheel provides a flat space on which to place the monitor. The pedals are large; the brake has a stiffer spring than the gas pedal. The Virtual Vehicle affords the most realistic and most comfortable driving position of any wheel we tested.

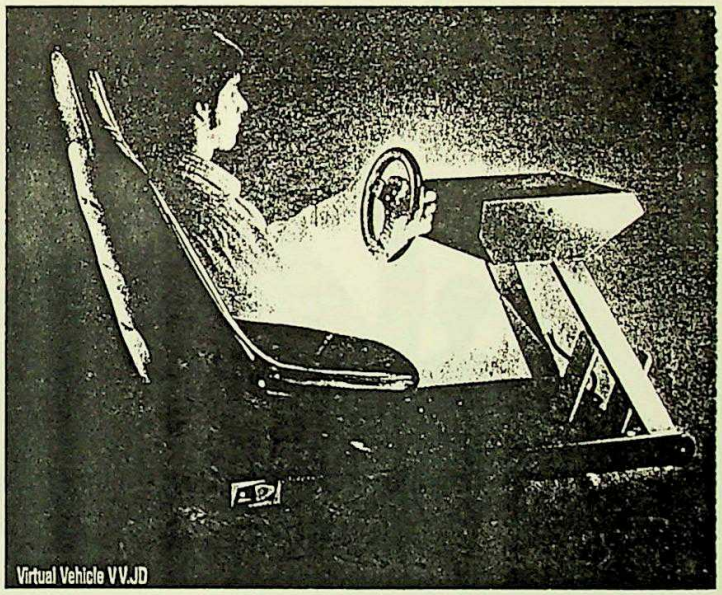
But the steering is "sticky." The slightest motions to the left or right when driving in a straight line produce a sudden, jerky reaction on the screen, rather than

Fourth Place
Virtual Vehicle VV.JD ($1295)

Highs: The cockpit is like a genuine race car's, and that makes this the most realistic sim.

Lows: The steering wheel has a sticky on-center feel.

The Verdict: A great concept is undercut by subpar steering.


Virtual Vehicle VV.JD

Vital Statistics

	retail price	adjustable steering sensitivity	method of shifting	number of buttons	method of securing to desktop	pedals secure to floor/carpet	fastest lap time*
CH Products EXL500 Racing Set	$60	no	lever	4	clamps, suction cups	Velcro	1:50.41
Extreme Competition Controls CDS4000	$995	yes	buttons	4	weight	weight	1:49.36
InterAct V3 Racing Wheel	$59	yes	buttons	12	none	no	1:54.11
Mad Catz Analog Steering Wheel	$60	no	lever	12	suction cups	no	1:51.03
SC&T International Ultimate Per4mer Racing Wheel	$100	no	buttons	18	clamps	no	1:53.45
Thomas Enterprises TSW Formula	$725	no	paddles	2	clamp	by design	1:46.91
ThrustMaster NASCAR Pro Racing Wheel	$180	no	lever	2	clamps	no	1:51.41
Virtual Vehicle VV.JD	$1295	no	buttons	4	N/A	N/A	1:49.61

* The fastest recorded time after the three pilots drove one lap around Sears Point Raceway.

Mad Catz

Dual Force™
Racing Wheel
for/pour PlayStation™

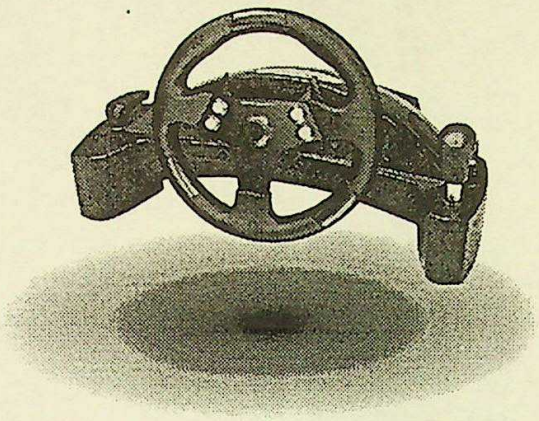
Analog and Digital Steering Wheel with Foot Pedals
Volant à contrôle digital et analogique accompagné de

NASCAR® PRO DIGITAL™

The Winning Tradition Continues

What do you do with a racing wheel that has won Editors Choice awards from PC Magazine and PC Gamer, Best Driving Wheel of the Year from CNET Gamecenter and Hardware of the Year from PC Multimedia and Entertainment? Make it even better, of course. The digital precision of USB or DirectConnect, plus a significantly enhanced steering wheel, give racers control never before possible.

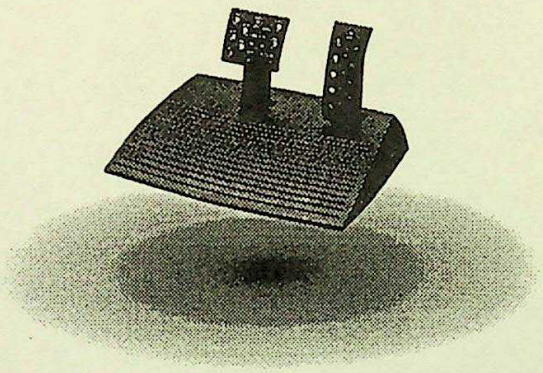
THRUSTMASTER 98



- **Digital Performance**
  New USB or DirectConnect gives the digital edge.

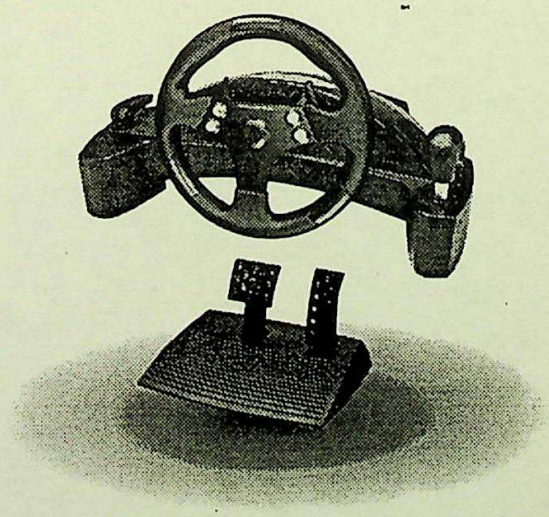
- **Activator Software**
  Easy and accurate calibration in Windows.

- **Formula 1 Inspired Paddle Shifters**
  Faster shifts with better control- your hands never leave the wheel.



- **Purpose-Built Racing Wheel**
  With four action buttons.

- **Racing Wheel Leader**
  Built by the world leader in computer racing wheels



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- Package Dimensions: TBD
- Master Pack Weight: approx. 35 lbs
- Master Pack Dimensions: TBD
- Master Pack UPC Code: 207-35372-11983-6
- Master Pack Quantity: 2
- Windows 95/98, game port and USB connection

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http://www.thrustmaster.com

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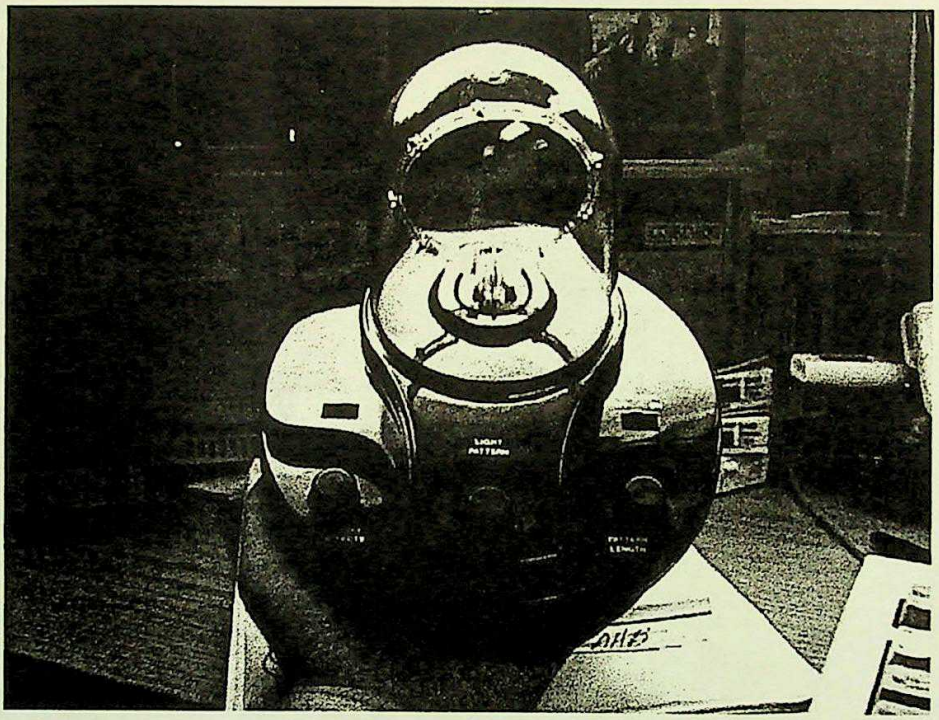
LIGHT
PATTERN

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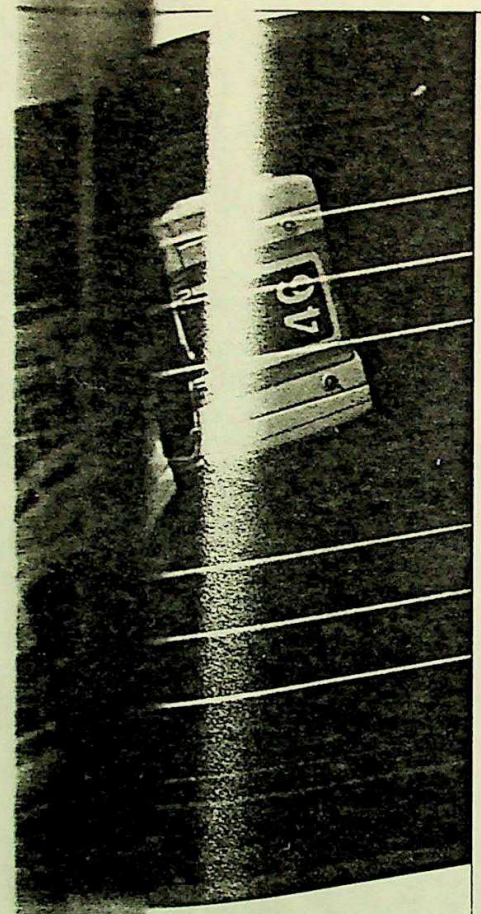
(WHO ELSE?)



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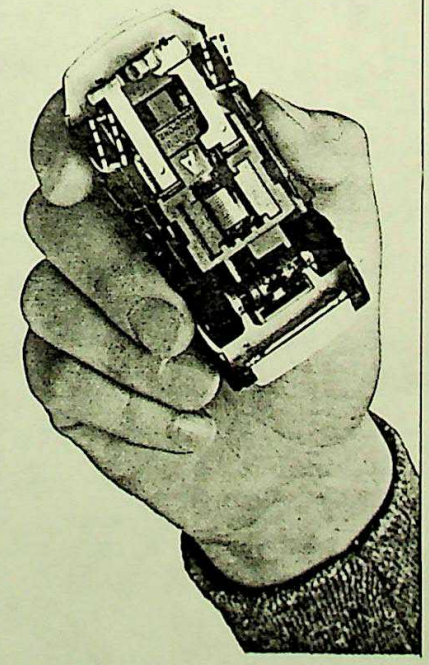
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